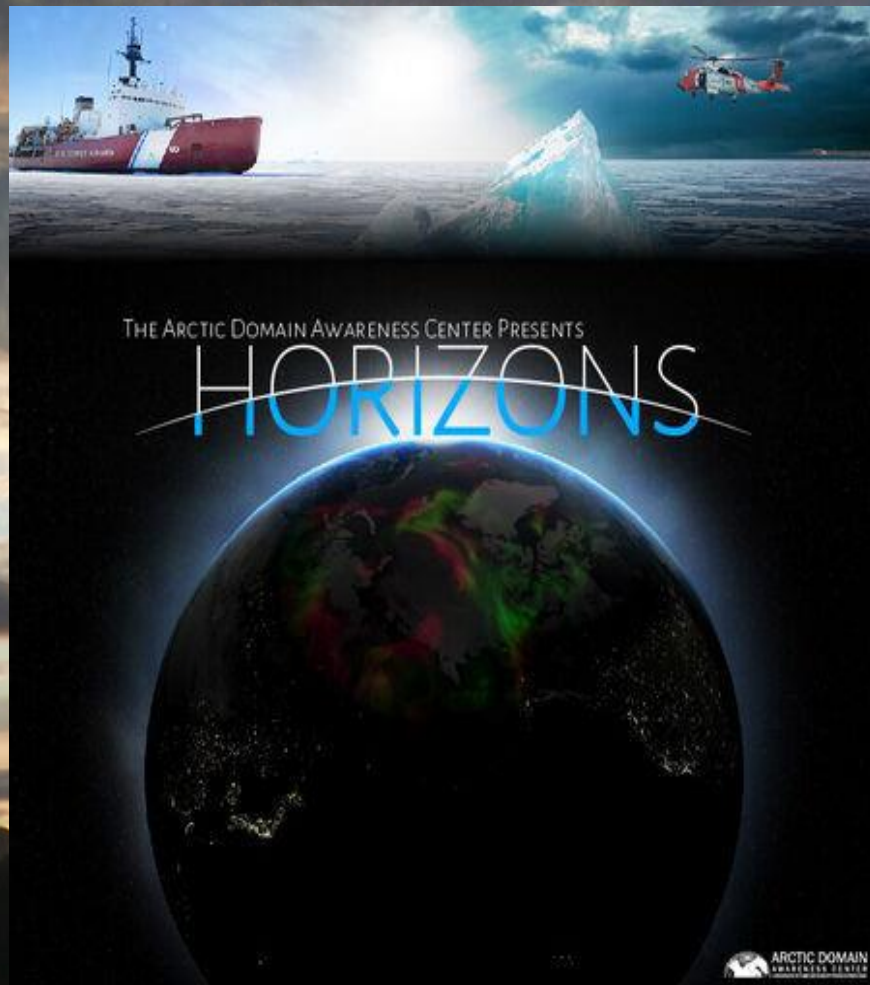


6 July 2021



ARCTIC MARITIME HORIZONS CONFERENCE REPORT



Arctic Maritime Horizons (AMH) Conference Report

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Exercise Introduction

The Arctic continues to advance as a region of increased focus and attention to multinational organizations, nations, industry, and illicit actors. While changes to the physical environment of the region continue to outpace corresponding factors from lower latitudes the Arctic also is experiencing a sharply rising level of human interest and activity. Collectively, these changes are catalyzing the need to deconflict the waterways use and frequently reassess the risks to the marine environment, commercial shipping, subsistent activities, and any other existing or emerging maritime activity. The change in the maritime environment also necessitates that the U.S. Coast Guard (USCG), in coordination with other governance organizations vested with safety and security mandates, reassess current plans and activities to advance better policies, plans, and activities in support of the peaceful opening of the Arctic. This includes advancing and modernizing the Maritime Transportation System (MTS) in the Arctic.

Headquarters U.S. Coast Guard's Directorate of Maritime Transportation Systems is responsible to develop and promulgate plans and programs to provide safe and secure U.S. waterways management, and that includes the U.S. Arctic region. The Arctic Domain Awareness Center (ADAC) is a U.S. Department of Homeland Security, Science and Technology (S&T) Directorate's University Programs, (OUP) Center of Excellence in Maritime Research hosted by the University of Alaska, focused on the U.S. Coast Guard mission in the Arctic Region. Over the past 5 years, ADAC has worked closely in support of HQ USCG's Director of Maritime Transportation Systems and with the HQ USCG Senior Arctic Policy Advisor (SAPA) on a number of Arctic policy initiatives, workshops and activities.

In accordance with ADAC's Medium-and-Long-Term Environment (MaLTE) exercise processes, the Center, in partnership with HQ U.S. Coast Guard (USCG) Director of Maritime Transportation Systems and Senior Arctic Policy Advisor, developed and conducted a hybrid (that included in-person and virtual participation) tabletop exercise on 5 and 6 May 2021 in Anchorage, Alaska. The exercise was organized to address policy, plans and initiatives to support HQ USCG and the Coast Guard Enterprise in advancing the 2019 USCG Arctic Strategic Outlook (ArcSO) task to "Advance and Modernize the Arctic Marine Transportation System." Accordingly, ADAC's "**Arctic Maritime Horizons**"



Exercise provided an orienting and deliberative plenary forum to set the foundation for participants followed by a 3-move tabletop exercise, organized around a series of fictitious, but plausible crisis scenarios. These activities were constructed to challenge assumptions, gain insights and organize follow-on items of consideration to guide USCG Arctic and Maritime Commerce Strategic Outlook implementation tasks.

Due to on-going safety concerns associated with the Coronavirus 2019 (COVID-19) pandemic, the event was held as a “hybrid” event with both virtual and limited in-person participation in accordance with the health mandates of the Municipality of Anchorage and University of Alaska Anchorage. The event drew in virtual participation from across the Circumpolar North and the United States in addition to maximum allowable in-person participants. Exercise planners were appreciative that in-person participants included representation from Alaskan Native communities, USCG District 17, HQ USCG, Alaskan & Arctic maritime professionals, and industry representatives from across the U.S. Arctic MTS.

Overview

As the Arctic landscape physically changes, the economic and political landscape of the Arctic is changing as well. Continuing accessibility of Arctic waters has continues to invite the interest of nation-states, industry, and unfortunately, illicit actors. Recent increases in human activity within the region has placed strain on the limited resources and infrastructure available to support maritime operations in the Far North. The new, (and increasingly much more dynamic) Arctic is catalyzing the need to take further measures aiming in addressing the use of the region’s waterways, and iteratively reassess the risks to the marine environment, commercial shipping, subsistence activities, and any other existing or emerging maritime activity. Changing conditions in the maritime environment also necessitate the USCG, in coordination with other governance organizations vested with safety and security mandates, reassess current plans and activities to advance better policies, plans, and activities in support of the peaceful use of the region’s waterways. This includes advancing and modernizing the Maritime Transportation System (MTS) in the Arctic.

Per the USCG’s 2018 Maritime Commerce Strategic Outlook (MCSO) the MTS is the lifeblood of the Nation’s economy.¹ The USCG’s 2019 Arctic Strategic Outlook (ArcSO), placed a new and important series of updates to the prior USCG 2013 Arctic Strategy.

The USCG’s ability to maintain a safe, secure, and efficient national MTS facilitates more than \$5.4 trillion per year in economic activity, supporting more than 30.8 million jobs. In combining applicable aspects from the 2018 MCSO with the 2019 ArcSO, USCG planners anticipate that increased maritime activity in the Arctic will create increased demand for the full spectrum of USCG authorities, services and capabilities to manage risk and deconflict activities in the Arctic MTS.

¹ U.S. Coast Guard. (2018) United States Coast Guard Maritime Commerce Strategic Outlook. <https://media.defense.gov/2018/Oct/05/2002049100/-1/-1/1/USCG%20MARITIME%20COMMERCE%20STRATEGIC%20OUTLOOK-RELEASABLE.PDF>



While Arctic shipping is a daunting economic and operational challenge to feasibly achieve, the region is now witnessing a rise in such activities. As geostrategic and economic conditions have the potential to make key routes through the Straits of Malacca and the Suez and Panama Canals less predictable, sea lanes in the Arctic may potentially be poised to provide valuable temporary or enduring alternatives between North America, Europe, and Asia. The potential for increased levels of Arctic shipping has implications for both commerce and military mobility and makes establishing a safe and efficient MTS in the Arctic important to the Nation's security, resiliency, and prosperity.

Arctic maritime activity has several distinctive facets. Throughput shipping via Arctic routes is but one feature (currently via the Northern Sea Route which parallels the Eurasian landmass, the Northwest Passage which transits the North American Arctic archipelago and a Trans-polar route, which transits the central Arctic basin). Arctic throughput shipping is principally conceived to connect markets in East Asia with European counterparts. In addition, there are commodities shipments that originate in the Arctic that use such Arctic shipping routes to get products to market, destination tourism and local mariner activities (such as fishing and subsistence practices).

The U.S. Arctic MTS is associated with the U.S. Extended Economic Zone (EEZ) that includes the Aleutian islands and includes the U.S. EEZ (defined as region within 200 Nautical miles from established U.S. coastlines) of the Bering, Chukchi and Beaufort Seas. Whereas the current amount of traffic that operate North of the Aleutians is currently measured in the hundreds on an annual basis, the traffic that operate via east-west routes between East Asia and the west coast of North America in the vicinity or via the Aleutians measured in the tens of thousands annually.

Utilization of Arctic shipping routes are currently not feasible for months every year unless significant icebreaking measures are utilized (and seasonal ice variations can make icebreaking extremely difficult when wind and ocean current conspire to create barriers of compacted sea ice, known as "hummocks").

Due to costs and manpower, replicating the MTS that exists in the contiguous United States is currently not a viable option in the U.S. Arctic. Therefore, the USCG must complement its existing MTS management tools with innovative policies and technologies, developed in partnership with both the public and private sectors. As a principal instrument to provide safety and security of America's waterways, the USCG will lead the comprehensive integration of the Arctic into the Nation's critically important MTS. This will enable growth in commerce and contribute directly to the strength, resilience, and prosperity of the Nation.

In order to advance planning and development of ArcSO and MCSO implementing documents to benefit Arctic region MTS, Headquarters U.S. Coast Guard's Marine Transportation Systems Directorate (CG-5PW) required support in:

- 1) Understanding the near-term and future risks and requirements of an Arctic MTS that enables responsible maritime activity and growth.
- 2) Identifying changing conditions of the human terrain and associated impacts to the effective rule of law
- 3) Understanding options, opportunities, and courses of action for progressing the Arctic MTS



4) Identifying methodologies for evaluating and quantifying advancements in the MTS.

Through improved understanding of these objectives, and to identify needed policies, authorities, and technologies, Headquarters USCG CG-5PW (Directorate of Maritime Transportation Systems) contracted support to conduct a focused and inclusive exercise with multi-national, U.S. national departments and agencies, Arctic leaders in governance, industry, and academia. In support of CG-5PW, the Arctic Domain Awareness Center (ADAC), planned, organized and conducted “Arctic Maritime Horizons,” a HQ USCG Sponsored Exercise, focused on “Improved Solutions in Maritime Transportation Systems for the Arctic Domain.”

Arctic Maritime Horizons was principally oriented as a tabletop exercise involving a series of plausible and realistic exercise crisis scenarios. Each scenario was purposely designed to elicit participation from a multidiscipline array of participants to frame and cross examine the elements of the problem in order to propose suitable options to address the challenges and opportunities emanating from the scenario.

This exercise sought to advance items of relevance to future horizons through convening leaders and experts to surmise and assess current baselines of organizational strategies, plans, policies, and implementation activities in order to identify shortfalls, gaps, new synergies and convergence opportunities in shared MTS endeavors in the Arctic.

Due to the considerable insights gained in Arctic Maritime Horizons 2021, ADAC will host a follow-on activity in 2022 to advance discussions and analysis via a cost-effective on-line exercise.

Executive Summary.

The purpose of Arctic Maritime Horizons 2021 was to gather Arctic minded experts from government, operators, academics, and industry from across the United States as well as from the international community (in particular Canada) to conduct a series of “speed discussions” to address important parameters associated with safety and security of the MTS in the Arctic, followed by a table top exercise that address 5 planned scenarios oriented to understand and comprehensively analyze medium and long term challenges affecting the safety and security of the U.S. Arctic MTS. This analysis is important to collaboratively address needed objectives for advancing and modernizing the MTS in the Arctic.

A key outcome to this exercise is to build on associated baseline discussions and assessments (much of which is contained in a preparatory Literature Review), in order to provide a summary and draft a series of “solutions” oriented as White Papers on the associated topics of discussions and provide to participants so that policy and decision makers can leverage.

Overall, Arctic Maritime Horizons was accomplished via a sequential series of Panels, Roundtables and Tabletop Exercise moves. The exercise moves were accomplished via ADAC “scene setter” scenarios through two step videos, presented to the exercise participants, provide exercise



controllers an alternative to more costly and timely simulations. Such “informercials” to scene set are adaptable to as many sequences/steps as desired by the exercise control group. The effectiveness of a central “event hub” ...accessible via ADAC’s website was critical. The Event Hub is the standard in which ADAC conducts virtual events...and contained videos, documents and other resources useful to inform participants comprehensively as possible. Accordingly, ADAC utilized an “Arctic Maritime Horizons 2021” Event Hub to place all associated materials, organized to the same construct of time sequence as a guide for exercise participants. Please see:

https://arcticdomainawarenesscenter.org/EventHub_Horizons21

Foundational documents which guide exercise orientation are the USCG’s 2018 Maritime Commerce Strategic Outlook (MCSO) and 2019 Arctic Strategic Outlook (ArcSO). Important inputs to the literature reviews include Arctic oriented or applicable Committee Maritime Transportation System documents as well as associated Aleutians, Bering Sea, Chukchi and Beaufort Sea Port Access Route Studies (PARS), along with navigation and waterways management policies and regulatory guidance developed and maintained by HQ USCG. Such information provides a baseline of current understandings and knowledge in order to more rapidly advance the exercise to focus on solutions and future opportunities.

Strategically, the exercise was framed to address the possible futures related to the MTS in the Arctic region. Based on the range of possible futures, planners, seek to establish the corresponding needs of the U.S. Arctic region MTS, then distilling the needs to elements which are common to all likely/probable futures, and then seek to establish associated priorities, to include timeframes for recommendations. While participants were quick to identify gaps or inadequacies within the U.S. Arctic MTS, participants also provided constructive insights on how these issues could be addressed by the community of Arctic operators and government. Ultimately these conversations highlighted the need for cooperation and collaboration between industry, government and local communities as challenges in the Arctic are too great for a single entity to meet alone.

While USCG is tasked with governance and maintenance of the MTS, Indigenous communities and Industry have experience and assets that can be relied upon to supplement USCG extensive operational experience and capabilities in the Arctic. As illustrated by the exercise movements, maritime incident response in the Arctic will likely come from a multitude of regional industry and community actors before the USCG is capable of deploying assets on scene. Given there are limited vessels operating within the region at any given time, any vessel assisting with incident response will be one less available to support regular commerce and maritime operations in the U.S. Arctic MTS. Therefore, participants noted that a systematic approach is appropriate when in the development of incident response plans and preventative measures.

As investment is limited, it is important for USCG and local government to establish the right balance between preventative measures and response capabilities. Participants noted that with the right preventative measures and effective enforcement, response assets could remain unused throughout their entire operational lifetime. However not investing in response assets will leave the MTS vulnerable in the event of incident and reduce the ability for USCG to mount a quick and effective response. Therefore, participants appeared to arrive at the conclusion that response capability must



be balanced with enforcement of regulations that ensure the effective incident prevention. As one participant noted, the Circumpolar community at the international and national levels has been highly effective in establishing rules and regulations to govern maritime activity in the Arctic. However, governments have been less effective in provisioning law enforcement entities, like the USCG, with the capabilities to enforce these rules. Strategies and guidelines for safe and sustainable activity must be backed with methods and capabilities for their effective implementation. The following are selection of specific themes and outcomes that were most frequently cited by Exercise participants:

- **Designation of Ports of Refuge**
- **Community Involvement in Incident Response and Prevention** (and consider establishing U.S. Coast Guard Auxiliary units across Arctic Maritime Alaska).
- **Address Information Infrastructure in Prevention.**
- **Address Information Infrastructure in Response.**
- **Address Data Centralization and Information Sharing.**
- **Establishment or Re-establishment of Maritime User Forums.**
- **Need for Established, Inclusive Forums to Evaluate and Determine Improvements for the Maritime Transportation System.**

These topics are well described in the Analysis section at the back of the report.

Acknowledgements.

ADAC wishes to extend our center's sincerest thanks and appreciation to HQ USCG MTS Director, SES Mike Emerson and HQ USCG Senior Arctic Policy Advisor, Mr. Shannon Jenkins for their partnership and support to the planning and execution of Arctic Maritime Horizons 2021. ADAC also offers sincerest thanks and appreciation to our esteemed panelists and speakers:

- RADM Nathan Moore, Commander, USCG District 17, Juneau, Alaska.
- Ms. Helen Brohl, Director, US Committee on Marine Transportation Executive Director, Washington D.C.
- Dr. Alyson Azzara, International Trade Specialist, Department of Transportation Maritime Administration, Washington, D.C.
- Mr. Steve Thompson, Superintendent, Maritime Search and Rescue Canadian Coast Guard | Arctic Region.
- Ms. Joy Baker, Director, Port of Nome, Nome Alaska.
- Dr. Dennis Thurston, Arctic Specialist/Physical Scientist, Alaska Region, Bureau of Ocean Energy Management (BOEM), U.S. Department of the Interior, Anchorage, Alaska.
- Dr. Scott Lindsey, Director, Alaska Region, National Weather Service, Anchorage, Alaska.
- The Honorable Harry Brower Jr., Mayor North Slope Borough Alaska, Utqiagvik, Alaska.
- Mr. John Hopson, Jr., Chairman of the Alaska Eskimo Whaling Commission, Utqiagvik, Alaska.



- Mr. Eugene “Gene” Peltola, Jr. Regional Director, Bureau of Indian Affairs, Alaska Region, U.S. Department of Interior.
- Ms. Mary David, Executive Vice President Kawerak Inc., Nome, Alaska.
- The Honorable Lucy Nelson, Mayor and Mr. Nathan Hadley Jr., Assembly President Northwest Arctic Borough, Kotzebue, Alaska.
- Mr. Patrick Baker, Executive Director, Tribal Government of Saint Paul Island, Alaska.
- Ms. Elizabeth “Liz” Cravalho, NANA Corporation Vice President of Lands, Kotzebue, Alaska.
- Ms. Gail Schubert, President and CEO, Bering Straits Native Corporation, Nome, Alaska.
- Mr. David Clarke, President, Qilak, LNG, LLC, Anchorage, Alaska.
- Mr. Nagruk Harcharek, Director, Barrow Operations, Ukpeagvik Inupiat Corporation, Utqiagvik, Alaska.
- Ms. Stephanie Madsen, Executive Director, At Sea Processors, Juneau, Alaska.
- Mr. Crawford Patkotak, Commissioner, U.S. Arctic Research Commission, Chairman, Arctic Slope Regional Corporation and Vice Chairman, Eskimo Whaling Commission, Utqiagvik, Alaska.
- The Honorable Mr. Mead Treadwell, CEO, Qilak LNG, LLC., (and former Lt Governor for the State of Alaska and former Chairman of the U.S. Arctic Research Commission) Anchorage Alaska.
- Dr. Lawson Brigham, CAPT, USCG (Ret), Fellow, U.S. Coast Guard Center of Arctic Study and Policy, Global Fellow, Polar Institute Woodrow Wilson Center and Advisor, U.S. Arctic Research Commission, Eagle River, Alaska.
- CAPT Ed Page, USCG (Ret), Executive Director, Marine Exchange of Alaska, Juneau Alaska.
- CAPT Buddy Custard, USCG (Ret), President and Chief Executive Officer of the Alaska Chadux Network, Juneau Alaska.
- Mr. Taylor Holshauser, Alaska Ocean Cluster, Anchorage, Alaska.
- Mr. Garrett Evridge, Alaska Ocean Cluster, Anchorage, Alaska.
- Mr. Bill Popp, President and CEO, Anchorage Economic Development Corporation, Anchorage Alaska.

Lastly, we wish to extend a special note of thanks and appreciation to Mr. and Mrs. Mead Treadwell for their gracious hosting of the exercise participants on 5 May 2021 at their Anchorage residence.

Plenary Summary (Day One...5 May 2021)

The following represents the principal outcome of the tabletop exercise and is intended to serve as comprehensive knowledge product that supports the HQ USCG implementation planning for the ArcSO and MCSO, specifically oriented to the developing and increasingly complex MTS environment in the Bering, Chukchi and Beaufort Sea regions.

Reflections from the Exercise Customer.

Opening address and discussion of desired outcomes of the event.



Speakers:

- SES Mike Emerson, CAPT, USCG (Ret), HQ USCG Director of the Maritime Transportation, HQ USCG, Washington D.C.
- Mr. Shannon Jenkins, HQ USCG Senior Arctic Policy Advisor. HQ USCG, Washington D.C.



Reflections from the Exercise Customer. Opening address and discussion of desired outcomes of the event.

Speakers: SES Mike Emerson, CAPT, USCG (Ret), HQ USCG Director of the Maritime Transportation System and Mr. Shannon Jenkins, HQ USCG Senior Arctic Policy Advisor.

Given the challenges and many uncertainties on the horizon, HQ USCG MTS planners and decision makers are assessing the future risks and opportunities within the maritime transportation system for the Arctic region. New technologies present opportunities as well as challenges. Overall, USCG is investing more in modernizing aids to navigation, domain awareness, and communications technologies. As one small, but important example, the USCG has established a goal of moving to completely paperless charting by 2024 (which effects charting and access to charts). HQ USCG recognizes the need to replace older cutters, buoy, and construction tenders, some of which are now 70 years old. A prominent example of an emerging challenge and opportunity from new technology is the adoption of automation in large bulk shipping operations. Private communication networks like Star Link could allow vessels in the future to operate autonomously with little direction or input from on board crewmembers. Minimally crewed or even unmanned vessels would require the USCG to develop new safety and operational standards. USCG would then need to develop training programs to equip them with the knowledge needed to perform inspections and law enforcement operations. The operation of such vessels in regions with insufficient charting like the Arctic could be especially hazardous.

Given the change of presidential administrations, priorities have changed within the federal government. The possibility of new infrastructure spending could advance new deep water port projects and revamp existing components of the maritime transportation system, that may include the U.S. Arctic region. Climate change has reentered the vocabulary of Federal policymakers, as the new administration is focused on the risks presented by climate change, in which the Arctic is considered one of the more important focus areas to address a changing climate. Increased demand for renewable energy resources may result in new offshore wind farms, (which can range from small to a very large scale) which may complicate USCG approaches in waterways management and may



necessitate adaptations of policies and regulations maritime transportation in the vicinities of new windfarms.

Within the context of the Arctic specifically, the U.S. faces many challenges when it comes to maintaining environmental security, economic security, human food, water, safety, and coastal resilience. The U.S. Maritime MTS impacts or maintains all aspects of overall Arctic security in some way shape or form. While the USCG is the primary entity charged with maintaining the MTS, meeting the modern challenges of the MTS system in the Arctic is only possible through robust partnerships between Federal, State, Local, Indigenous and industry leaders.

In order to plan and prepare for the future operating environment, the USCG developed the Maritime Commerce Strategic Outlook and the Arctic Strategic Outlook. HQ USCG leaders have subsequently developed implementation plans for these strategic documents, outlining 12 and 14 different initiatives respectively to drive USCG actions in planning and resourcing priorities to achieve the outcomes specified in USCG strategic documents. New and updated editions of these implementation documents are expected to be completed in late Summer 2021.

As a primary complication in advancing the U.S. Arctic MTS, policymakers and community leaders must balance responsible and sustainable growth with protections for the environment and local subsistence food sources. The HQ USCG “customers” closed by emphasizing the importance of forums like Arctic Maritime Horizons to build successful state, federal, and local partnerships.

USCG MTS Operational Leader Remarks from the Commander.



Speaker: RADM Nathan Moore, Commander, USCG District 17, Juneau, Alaska.

Commander of USCG District 17, Rear Admiral Nathan Moore, provided reflections on the operational side of Alaska’s maritime transportation system. USCG D17 is responsible for the entirety of Alaska’s maritime region, encompassing a total of 3,853,500 sq. miles and over 47,300 miles of shoreline throughout Alaska and the Arctic. The Arctic Maritime Horizons exercise was conducted two weeks after USCG Rear Admiral Nathan Moore assumed command of USCG District 17 (D17) in Juneau Alaska. While RADM

Moore had only recently arrived in Alaska, he has experience serving shipside in Alaska including service on the USCGC Polar Star as a student engineer.²

RADM Moore noted the changes in maritime traffic within the U.S. Arctic. Since 2009, transits of the Bering Strait have almost doubled. In 2020, 197 vessels made a total of 517 voyages through the Strait.³ The 2020 yearly total rivaled the peak of Bering Strait traffic in 2015, the last year of Royal Dutch Shell’s exploratory drilling project on the continental shelf of the U.S. Arctic. The primary

² Hohenstatt, Ben. (2021) ‘You’ve got the helm’: District 17 changes command. Juneau Empire. Published April 23, 2021. <https://www.juneauempire.com/news/youve-got-the-helm-district-17-changes-command/>

³ Krauss, Clifford & Reed, Clifford. (2015) Shell Exits Arctic as Slump in Oil Prices Forces Industry to Retrench. Published Sept. 28, 2015. <https://www.nytimes.com/2015/09/29/business/international/royal-dutch-shell-alaska-oil-exploration-halt.html>



drivers of new traffic through the Bering Strait remain Russian Liquid Natural Gas (LNG) shipments along the Northern Sea Route, specifically shipments from the Yamal LNG facility to customers in East Asia.⁴

The year 2021 also marked a major milestone for the Arctic maritime transportation system. In January 2021, three icebreaking LNG carriers completed a winter transit of the eastern Northern Sea Route to deliver LNG shipments to Asia without icebreaker escort.⁵ 2021 is expected to be the longest Arctic navigational season on record and the U.S. Coast Guard expects that the navigation season will only continue to grow into the future. While the 2012 through 2015 spike in maritime traffic in the U.S. Arctic was due to one single operator, Royal Dutch Shell, traffic is expected to increase steadily in the near future due in part to the increase of Arctic destination tourism and cruise ships. Ultimately the USCG is preparing for multiple scenarios with differing degrees of traffic increases, including temporary large spikes in activity associated with resource extraction or other economic activity.

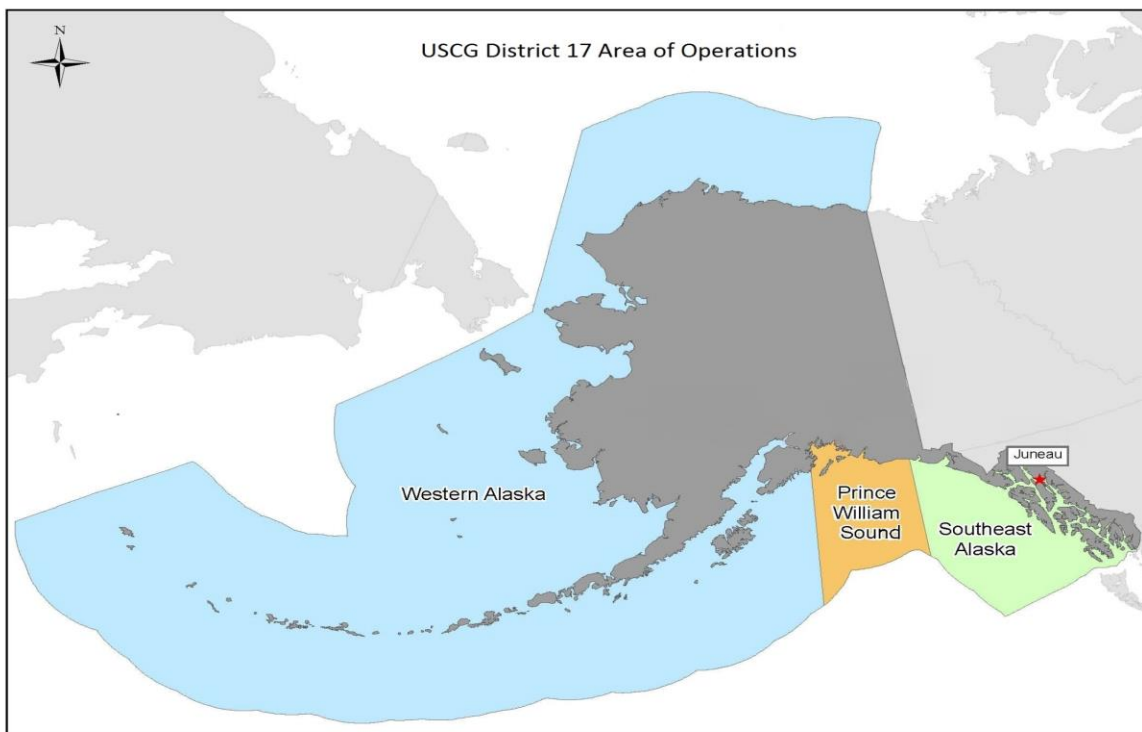


Figure 1 USCG District 17 Area of Operations

As it is responsibility of the USCG to analyze maritime transportation systems and recommend

⁴ Yamal LNG. (n.d.). Retrieved 2020, from <http://yamallng.ru/en/project/tankers/>.

⁵ Humpert, M. (2021) Winter transits along the Northern Sea Route open up a new frontier in Arctic shipping. High North News. Published January 25, 2021. Retrieved from High North News <https://www.arctictoday.com/winter-transits-along-the-northern-sea-route-open-up-a-new-frontier-in-arctic-shipping/>



changes to both international and domestic law and regulations, USCG District 17 Alaska is developing a revised and renewed Arctic Coast Port Access and Routing Study (Arctic PARS). At the time of writing the document was open for comment on the Federal Register.⁶ The study is a review of all Arctic region navigational hazards, current and future traffic patterns, environmental changes, current and needed aids to navigation, and the adequacy of current hydrographic surveys.

The study will result in new shipping routes and recommendations to improve the safety and efficiency of navigation within the U.S. Arctic waters. The USCG is also developing new investments in infrastructure in Alaska and is recapitalizing the USCG surface fleet at a rate unseen since World War II. The fleet recapitalization has been authorized by the U.S. Congress and approved by the President of the U.S. to include 6 (3 heavy and 3 medium) new Polar Security Cutters (icebreakers) to complement the USCG's two active icebreakers, the USCGC Polar Star and the USCGC Healy.⁷



UNCLASSIFIED

Vessels & Transits of the Bering Strait 2009-2020



In 2020: 197 vessels completed 517 transits



8

Figure 2 Vessel & Transits of the Bering Strait 2009-2020

As Arctic maritime activity increases so does the demand for USCG environmental enforcement. RADM Moore stated that much of this prevention policy, focused on avoiding large scale environmental disasters like the Exxon Valdez oil spill in 1989. While oil spill prevention long served as a driving imperative of USCG environmental policy, the USCG must also prepare for other

⁶ U.S. Coast Guard, DHS. (2018) Port Access Route Study: Alaskan Arctic Coast. 83 FR 65701. 2018-27604. Retrieved June 2021 <https://www.federalregister.gov/documents/2018/12/21/2018-27604/port-access-route-study-alaskan-arctic-coast>

⁷ U.S. Coast Guard. (2021) Polar Security Cutter. Acquisition Directorate of USCG. Retrieved May 2021 <https://www.dcms.uscg.mil/Our-Organization/Assistant-Commandant-for-Acquisitions-CG-9/Programs/Surface-Programs/Polar-Icebreaker/>

⁸ Slide retrieved from 2020 Arctic Shipping Trends in D17 AOR, Slide Presentation, D17 Intelligence Branch



environmental issues that can arise from shipping vessels that potentially use fuel sources other than oil.

Although there are a variety of 'tools' available to USCG to influence policies and directives governing maritime traffic, these tools or levers in the Arctic are more limited, especially in shared waterways managed with Russian Federation counterparts (such as the Bering Straits). As a result of the international aspects of Arctic maritime community, USCG has engaged with Russia and other Arctic states through the International Maritime Organization (IMO). Through such engagement, the IMO established common standards for Arctic maritime operators through the International Code for Operating in Polar Waters or the IMO Polar Code, which went into force in 2017.

The USCG was also involved in the joint U.S. Russian proposal to the IMO which established voluntary shipping lanes for the Bering Strait. Presenters also mentioned that the USCG is drafting a follow up joint U.S. Russian proposal specifying areas to be avoided surrounding the Diomed Islands. The USCG is also working with partners in Canada to establish similar measures to link the U.S. Arctic waters to the Northwest passage. In addition to the safety, security and law enforcement responsibilities USCG conducts on behalf of the U.S. Department of Homeland Security, the USCG also provides a vital role in partnership with the U.S. Department of Defense to assert a sovereign presence in U.S. waters and in defend U.S. security interests throughout the Arctic region.

Panel #1: Public Officials Reflections on the challenges and opportunities of the future U.S. Arctic MTS.



Speakers:

- Ms. Helen Brohl, Director, US Committee on Marine Transportation Executive Director, Washington D.C.
- Dr. Alyson Azzara, International Trade Specialist, Department of Transportation Maritime Administration, Washington, D.C.
- Mr. Steve Thompson, Superintendent, Maritime Search and Rescue Canadian Coast Guard | Arctic Region.
- Ms. Joy Baker, Director, Port of Nome, Nome Alaska.
- Dr. Dennis Thurston, Arctic Specialist/Physical Scientist, Alaska Region, Bureau of Ocean Energy Management (BOEM), U.S. Department of the Interior, Anchorage, Alaska.
- Dr. Scott Lindsey, Director, Alaska Region, National Weather Service, Anchorage, Alaska.

The first plenary panel of Arctic Maritime Horizons included a diverse group of national and regional government officials who are actively involved in policy development for the U.S. Arctic Maritime Transportation System. Their backgrounds included prevention, response, safety, and environmental characterization. The panel further elaborated on the growth of maritime traffic within the waters of Circumpolar North and described the resulting challenges and opportunities arising from a changing Arctic region. The panel first provided a baseline assessment of current traffic and the maritime transportation system and then



developed a framework for considering the future of the U.S. Arctic MTS. The desired outcomes from the panel were to increase exercise participant understandings of current and developing policies and regulations, new capacity developments, new or developing safety/risk mitigations, and/or environment characterizations affecting the Arctic MTS from Washington, D.C., Ottawa Canada and/or regional vantage points in Alaska.

According to the U.S. Committee on the Marine Transportation System's (CMTS) Ten-Year Projection of Maritime Activity in the U.S. Arctic Region, 2020-2030, the number of vessels that operated in waters around the Bering Strait, Chukchi, and Beaufort seas increased 128% since 2008.⁹ Total traffic is now 2.3 times larger than the number of vessels that passed through the region in 2008. According to AIS data collected by the U.S. Coast Guard District 17, a total of 255 (plus or minus 26) unique vessels transited through the U.S. Arctic and the surrounding region from 2015 to 2017. Over 50% of these vessels were tug, tow, or cargo vessels. The proportion of other vessels included 10% fishing vessels, 9% tourism, 7% tankers, 6% government vessels, and 5% research vessels. Despite the cessation of Royal Dutch Shell's offshore oil exploration activities in 2015, the growth of traffic in the region slowed but did not stall. Similarly, 2020 traffic did not decline despite the almost complete elimination of tourism and adventure traffic due to the COVID-19 pandemic.

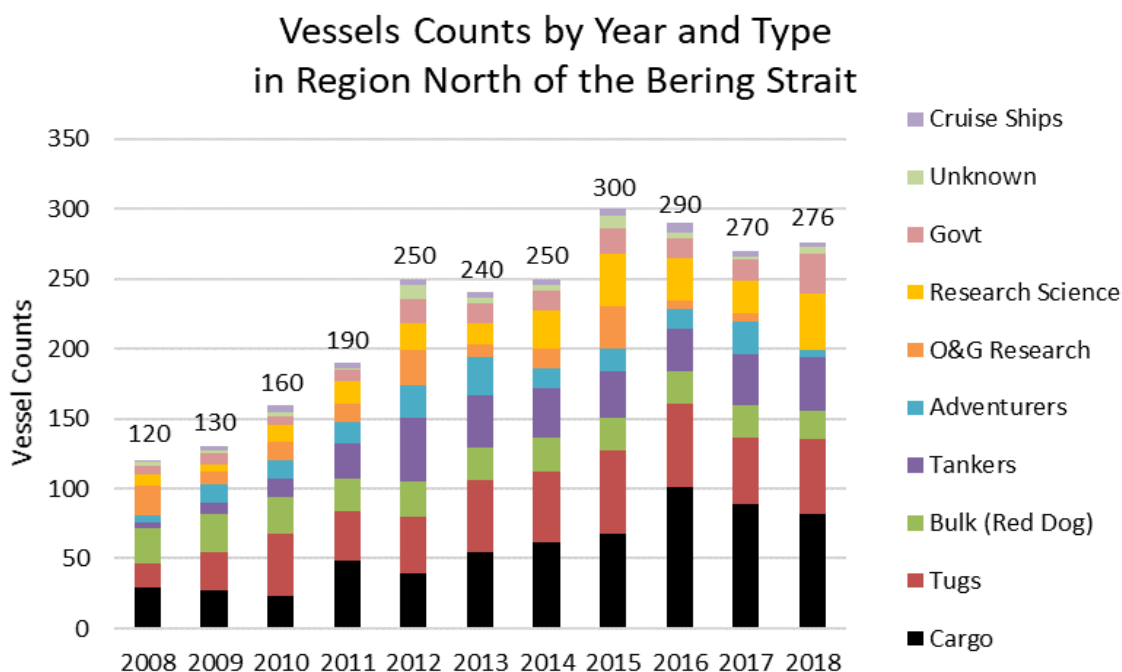


Figure 3 Vessel counts by year and type in the area of interest north of the Bering Strait. Data provided by USCG D17.

The diversity in traffic reflects a transition from primarily regional operations to an increasingly international set of users. 25 flag states were represented in the region in 2015. This grew to 38 flag

⁹U.S. Committee on the Marine Transportation System (2019). A Ten-Year Projection of Maritime Activity in the U.S. Arctic Region, 2020–2030. Washington, D.C.
https://www.cmts.gov/downloads/CMTS_2019_Arctic_Vessel_Projection_Report.pdf



states in 2017. While U.S. flag vessels by far represent the majority of vessels in U.S. Arctic waters, Russian vessels represented the second most common flag states. Other states represented included Panama, the Netherlands, Canada, followed by other common international flag states like Marshall Islands, Singapore, and Liberia.

An increasingly ice-diminished environment across the Arctic is enabling a longer navigation season, which has grown by seven to ten days per year over the past decade. The U.S. CMTS now estimates that by the end of the next decade, the navigation season in and around the Bering Strait will extend by two and half months over present levels.

In 2020, the U.S. Committee on the Marine Transportation System (CMTS) Arctic Integrated Action Team (IAT) issued an updated U.S. Arctic Marine Transportation System Infrastructure Inventory which included an assessment of physical and information infrastructure, navigable waterways, governance and response services, and vessel operations. The report identifies multiple areas for improvement within the U.S. Arctic MTS including the need for official Maritime Places of Refuge in the U.S. Arctic. Additionally, there are no deep seaports north of the Bering Strait; the only U.S. port facility beyond the Bering Strait is the Port of Kotzebue which can only receive shallow draft vessels and barges during ice free conditions. The 2020 National Defense Authorization Act required the Department of Defense to submit a report on the designation of one or more sites as a strategic port in the Arctic. The report delivered to Congress stated that the office of Secretary of Defense did not believe that the designation of another strategic port was necessary at this time as no port north of Anchorage/the Port of Alaska, currently fit that definition.

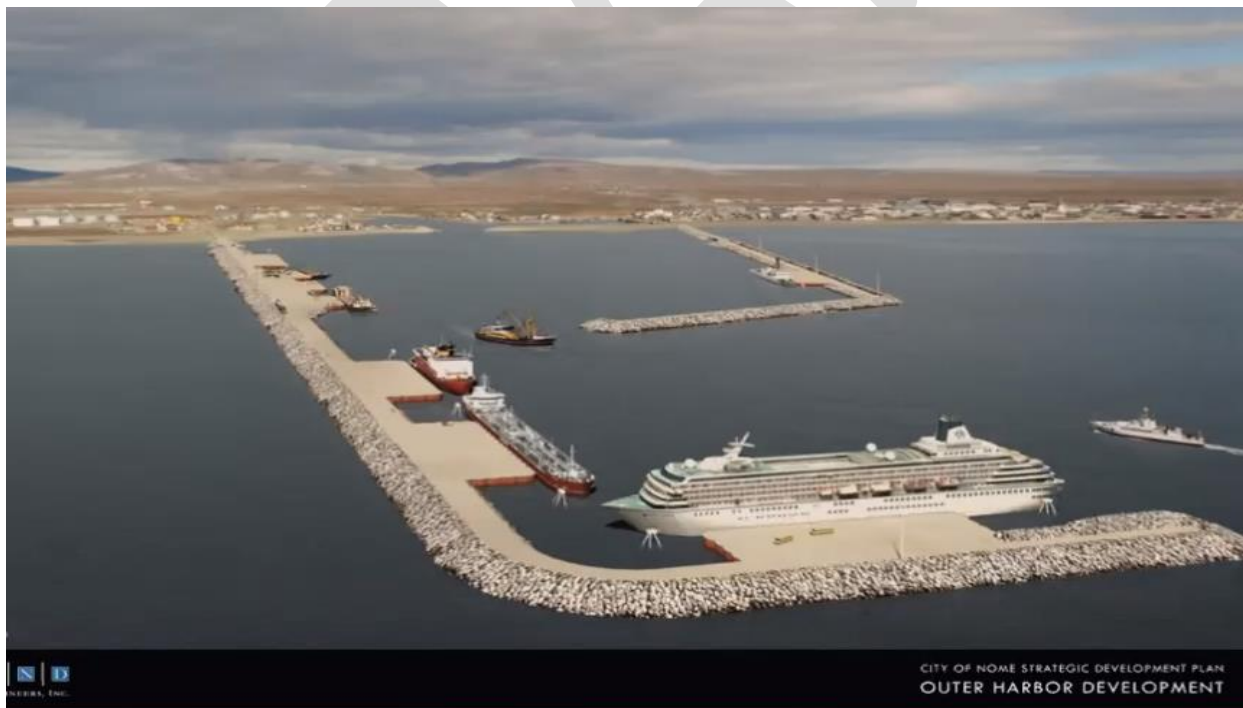


Figure 4 Rendering of Port of Nome Development Plan. Slide presented by panelist.

Bering Strait traffic has also placed increased demand on the Port of Nome to provide services for new vessels operating in the region on top of the port's traditional role as a regional shipping hub for



Western and Northern Alaskan coastal communities. The Port of Nome, operated by the City of Nome, was authorized by Congress to deepen its harbor in 2021.¹⁰ Current plans for port expansion would result in a deep-water port capable of supporting larger cruise, cargo, and USCG vessels.

As for information infrastructure, 0% of the top seaports and highly trafficked shallow waters and 59% of deeper water areas were determined to be adequately surveyed within the Infrastructure Inventory. Currently, of the 56% of Alaskan shoreline mapped by NOAA, only 35.3% has been used to update NOAA nautical charts. Additionally, the report noted that limited line of sight communications above latitude 65 N and limited SATCOM above latitude 70 N further limits the availability of information to mariners. Climatic changes have also made weather prediction less reliable as the region experiences new and anomalous weather conditions. The report also mentions positive improvements for the current and future availability of government response assets with the expected delivery of the first USCG Polar Security Cutter in 2024. Leveraging observations of changes in maritime traffic, the U.S. Committee on the Marine Transportation System (CMTS) tasked their Arctic Integrated Action Team (IAT) with the development of a report outlining ten-year projections for Arctic maritime traffic, covering a period from 2022 through 2030. The report projects four different scenarios of vessel traffic with varying degrees of volume and probability. The scenario deemed the most plausible by the USCMTS estimates that the total number of vessels in the U.S. Arctic in 2030 will more than triple over the numbers seen in 2008. Total transits within the region under this scenario will more than double by 2030.



UNCLASSIFIED

NSR Shipping Season Expansion



2014: 30 Jun - 13 Nov 20 (4 Months & 14 Days)
2015: 26 Jun - 11 Nov 20 (4 Months & 15 Days)
2016: 27 Jun - 18 Nov 20 (4 Months & 21 Days)
2017: 18 Jun - 17 Dec 20 (5 Months & 27 Days)
2018: 14 Jun - 14 Dec 20 (5 Months & 30 Days)
2019: 15 Jun - 14 Dec 20 (5 Months & 29 Days)
2020: 27 May -15 Jan 21 (7 Months & 19 Days)

Normal cargo operations have increased the NSR shipping season by one month.

2020-2021 LNG operations have increase the NSR shipping season by three months.

11

Figure 5 NSR Shipping Season Expansion

¹⁰ Rubano, C. (2021) Congress authorizes Deepwater port in Nome. Alaska Public Media. Published January 14, 2021. <https://www.alaskapublic.org/2021/01/14/congress-authorizes-nome-deepwater-port-project/>

¹¹ U.S. Coast Guard District 17 Intelligence Branch. (2020) 2020 Arctic Shipping Trends in D17 AOR.



The immediate future of maritime traffic through the Bering Strait will largely depend on the usage of the Northern Sea Route (NSR) through the Russian Arctic Maritime Transportation System. As an alternative between East Asia and European ports, the NSR is about 4000 miles shorter than the Suez route, and the Russian Federation has attempted to promote the NSR as a viable alternative trade route to the global shipping industry. The Russian Federation has invested heavily in infrastructure and support services within the NSR with the stated goal of increasing total shipping tonnage through the NSR to 80 million tons by 2024.¹² In 2020, NSR supported about 32 million tons of cargo. Therefore, in order to achieve the policy goal of 80 million, 5% of the 983 million tons transported through the Suez Canal in 2020 would need to be diverted to the NSR.

While incidents like the March 2021 Suez Canal obstruction provided the Russian Federation with an opportunity to promote the alternative of the Northern Sea Route to traditional trade routes, the current ability of the NSR to support the same vessels that transit the Suez Canal is limited.¹³ As of 2020, three of the world's top five shipping companies have joined public pledges not to utilize Arctic shipping routes (largely seen as a gesture of protecting the Arctic environment).¹⁴ If an event like the Ever Given obstruction were to have occurred in summer rather than winter shipping season, a majority of the vessels utilizing the Suez route could not easily divert to the NSR as most vessel operators are not compliant with the IMO Polar Code.

While there are currently impediments that prevent international cargo shipping through the Arctic, international multilateral organizations like the Arctic Council Protection of the Marine Environment (PAME) and the IMO are developing initiatives to promote safety and sustainability in Arctic shipping. This includes the implementation of the IMO ban on the use or carriage of heavy fuel oil (HFO) for Arctic vessels after July 2024 and an overall IMO goal of achieving zero carbon emissions from international shipping by 2050.¹⁵ As vessels are expected to transition to fuel sources that produce less pollution risk in the coming decades, the primary justifications for blanket bans on Arctic shipping, that are black carbon emissions by HFO and oil spill risk, could disappear by mid-21st century.

While limitations exist in use of the NSR and Arctic Shipping routes for international shipping, increased tonnage through the NSR remains fueled by natural resource gas exploration with the Russian Arctic. Large-scale deposits of natural gas exist within the U.S. Arctic, and if exploited, would result in a dramatic increase in volume of U.S. Arctic Maritime traffic. The U.S. Bureau of Ocean Energy Management estimates that 3.6 billion barrels of oil and 104 trillion cubic feet of natural gas

¹² Staalesen, A. (2019). Moscow adopts 15-year grand plan for Northern Sea Route. Barents Observer. December 31, 2019. <https://thebarentsobserver.com/en/arctic/2019/12/moscow-adopts-15-year-grand-plan-northern-sea-route>

¹³ Kundu, A. (2021) As Suez Canal Remains Blocked, Russia Promotes Northern Sea Route. Maritime Executive. Published March 26, 2021. <https://www.maritime-executive.com/article/as-suez-canal-remains-blocked-russia-promotes-northern-sea-route>

¹⁴ Nilsen, T. (2020) Arctic shipping boycott gains support among big businesses, but not all are happy. Barents Observer. Published Jan. 14, 2020. <https://thebarentsobserver.com/en/arctic/2020/01/avoiding-arctic-sea-routes-might-be-good-intention-isnt-solving-problem>

¹⁵ Comer, B. (2019). Transition Away from Heavy Fuel Oil in Arctic Shipping. The International Council on Clean Transportation. Retrieved https://theicct.org/sites/default/files/publications/Transitioning_from_hfo_Arctic_20190218.pdf.



remains undiscovered in the Beaufort, Chukchi, and Bering Seas. While the previous Presidential administration attempted to open up leases for new offshore exploration operations, the U.S. remains in a permitting pause for new offshore drilling.

Accordingly, Panelists suggested that new Alaskan onshore operations will likely leverage existing infrastructure and will therefore not result in significant advancements or traffic for the U.S. Arctic MTS. As a result of current policy and the lengthy public review process for any offshore exploration activity, marine traffic associated with oil and gas exploration and development will likely stay at the same level for the next decade and possibly beyond. Overall, panelists suggested that changes in the maritime activity resulting from U.S. oil and gas exploration would be slow and predictable and therefore give the USCG and the MTS time to adapt and respond.

Panelists then provided a characterization of the Canadian Maritime Transportation System. The Canadian territory represents a quarter of the total landmass within the Arctic Circle with 35,000 islands and 162,000 kilometers of coastline. While the volume of sea ice has reduced, ice has become less predictable, presenting challenges to both traditional marine routes utilized by local residents, as well as regional shipping and non-traditional routes that have emerged as a result of reduced sea ice. As in other regions of the Arctic, the Canadian Coast Guard recorded an increase in maritime traffic with a 36% increase in the number of vessels between 2010 and 2019.

This is fueled by increased mining activity and tourism in particular. There was an overall 33% increase in the number of cruise ship voyages and a 145% increase in the number of passengers carried on board over the same period. When the cruise industry returns to Canadian waters in 2022 with the lifting of COVID-19 restrictions, the Canadian Coast Guard is preparing for at least 18 operators in the Canadian Arctic. These operators are utilizing more expedition style cruise vessels with equipment tailored for the unique realities (and risks) of the Canadian Arctic. Additionally, these vessels are not operating on the primary or secondary shipping routes traditionally utilized in the Canadian Arctic and often are instead pursuing novel routes for each expedition.

In response to increasing traffic, the Canadian Coast Guard is investing in technology and collaboration in order to improve response capability and capacity. Overall, the Canadian Coast Guard operates 18 icebreakers, seven to nine of which serve the Arctic exclusively from May to November. The Canadian national shipbuilding program will eventually result in 16 multipurpose vessels, two new Arctic officer patrol ships, and six new icebreakers. In addition, the Canadian Coast Guard is concentrating efforts on improving collaborations with local indigenous communities to provide domain awareness and service delivery throughout the region. In order to advance improved response in Search and Rescue, the Canadian Coast Guard provided funding for 22 Indigenous Arctic coastal communities to purchase search & rescue vessels and other related equipment under the auspices of the Canadian Coast Guard Auxiliary Program. Additionally, the Canadian Coast Guard is also focused on further relationships with industry operators within the region to ensure vessels maintain emergency plans and avoid areas of significant risk.



Panel #2: Remarks from Alaska Indigenous Leadership. Investing insights and perspectives on the future U.S. Arctic MTS from Alaska Native leaders.



Speakers:

- The Honorable Harry Brower Jr., Mayor North Slope Borough Alaska, Utqiagvik, Alaska.
- Mr. John Hopson, Jr., Chairman of the Alaska Eskimo Whaling Commission, Utqiagvik, Alaska. (Note, remarks were delivered by Mr. Crawford Patkotak, Commissioner, U.S. Arctic Research Commission, Chairman, Arctic Slope Regional Corporation and Vice Chairman, Eskimo Whaling Commission, Utqiagvik, Alaska.
- Mr. Eugene “Gene” Peltola, Jr. Regional Director, Bureau of Indian Affairs, Alaska Region, U.S. Department of Interior.
- Ms. Mary David, Executive Vice President Kawerak Inc., Nome, Alaska.
- The Honorable Lucy Nelson, Mayor and Mr. Nathan Hadley Jr., Assembly President Northwest Arctic Borough, Kotzebue, Alaska.
- Mr. Patrick Baker, Executive Director, Tribal Government of Saint Paul Island, Alaska.

Panel #2 included a distinguished group of Alaskan Native Leaders in regional government and organizations that represent Indigenous concerns and traditional Arctic lifestyles. The desired outcomes from the panel were to increase exercise participant understandings towards current baselines, challenges and



Figure 6: Opening slide from panel #2.



opportunities towards the development of the Arctic MTS from an indigenous leader vantage point, and in particular insights important to gain in striking the right balance in developing policies that support new safe & sustainable economic developments on the Arctic MTS, while also minimizing impacts to traditional Arctic lifestyles. Further, these leaders provided invaluable insights in how best to partner with local authorities in developmental endeavors. The panel began by highlighting the importance of marine life for not only food security but for cultural preservation as well. In particular, the bowhead whale not only serves as a vital source of protein for communities within the Northwest Arctic Borough and North Slope Borough, but whale hunting is also tradition at the core of Indigenous Inupiat culture and community in the Alaskan Arctic.

The Alaska Native community is in a unique position in the context of a changing Arctic Maritime Transportation System. While international traffic has increased in recent years in waters near coastal Indigenous communities, the majority of traffic passing through does not provide a direct economic benefit to local communities. Instead, maritime traffic presents risk to marine mammal and fish populations that local communities rely upon. There is a perception, therefore that Indigenous communities within the Arctic assume the risk without reaping the benefits presented by Arctic shipping.

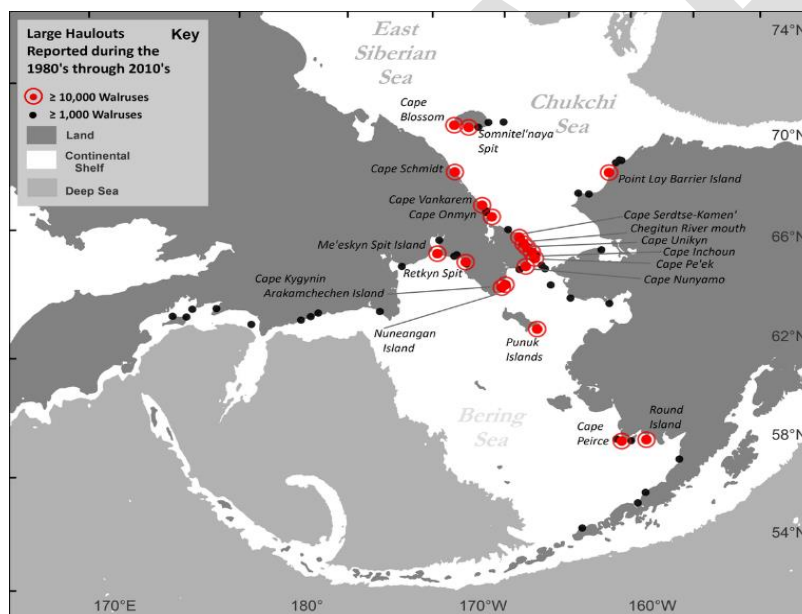


Figure 7 Locations of Large Walrus Haul Outs 1980s-2010s. [Retrieved from USGS](#)

Panelists noted numerous risks to the local environment related to Arctic shipping and increased commerce. Oil spill risk remains a common concern, either from bulk fuel shipments, storage or large cargo vessels. Panelists highlighted the severe impacts that would occur if such a spill were to take place during the bowhead whale migration as bioaccumulation of oil in whales could result in long term health effects for native peoples. Increased maritime traffic also presents risks to marine mammal populations, either through direct ship strikes or disruption from noise pollution in

their habitat.¹⁶ Walrus are another important subsistence source for many communities, and when they haul out on remote islands and shorelines in large colonies, they are also particularly vulnerable to disruption. Noise disruption can cause large haul outs with populations as large as 20-30,000

¹⁶ Gross, M. (2018). Arctic shipping threatens wildlife. *Current Biology*, 28(15), R803–R805. <https://doi.org/10.1016/j.cub.2018.07.053>



individuals to stampede, leaving many animals injured or dead.¹⁷ Panelists noted that despite these ongoing issues, there is limited enforcement of environmental regulations for vessels in remote locations. Air quality¹⁸ enforcement for example has reported by panelists as limited even when local monitors record violations.

In addition, panelists noted that not only coastal communities are impacted by risks within the maritime transportation system, but also communities that rely upon anadromous fish populations. Anadromous fish species, including salmon and Bering cisco, are born in freshwater but spend the majority of their lives in saltwater.¹⁹ As these fish species migrate through river systems from sea to deep into the interior of Alaska to spawn, an environmental disaster which impacts anadromous populations would have a significant 'down-stream' effects for Indigenous communities that rely upon these fishing runs. Therefore, communities that rely upon anadromous fish populations should be considered stakeholders when federal agencies consider maritime transportation policy. Overall, panelists recommended an inclusive approach when considering the full ranging implications of federal policy to Alaska's diverse and distinctive Indigenous population.



Figure 8 The Crystal Serenity docked in Nome, AK, August 2017 Retrieved from: <http://www.nomenugget.com/news/crystal-serenity-stops-nome-en-route-new-york-city>.

Panelists also noted the unique risks and challenges presented by increased tourism specifically. Cruise ships and adventure boats present the local pollution risk with the improper disposal of waste and grey water and direct threat to local marine life through ship strike and noise pollution. Panelists shared concerns that local communities are not equipped to provide search and rescue in support in the event of an emergency. Logistically supporting an emergency arrival of medium to large size cruise ships (many of which can readily exceed 2000 passengers and crews) in Arctic

coastal communities would be overwhelming. With the increase of international tourism in the Arctic, coastal Alaska communities have concerns regarding language barriers provide an

¹⁷ U.S. Fish and Wildlife Service, Alaska. (2019) Pacific Walrus: Use of Coastal Haulouts along the Chukchi Sea Coast. <https://www.fws.gov/alaska/sites/default/files/2019-08/coastal%20haulout%20walrus%20factsheet.pdf>

¹⁸ Schröder, C., Reimer, N., & Jochmann, P. (2017). Environmental impact of exhaust emissions by Arctic shipping. *Ambio*, 46(S3), 400-409. doi:10.1007/s13280-017-0956-0

¹⁹ NOAA Fisheries. What does anadromous mean? Retrieved June 2021 <https://www.fisheries.noaa.gov/node/8071>



impediment for communication with local communities and could present a series challenge in the event of an incident. Panelists noted a specific instance in 2016 when the Northwest Arctic Borough assisted a vessel with 120 tourists after it became stranded. Panelists noted that there have been no advancements in emergency response planning and resources to support incident response since that incident.

In order to address these challenges, panelists provided a number of recommendations to reduce risk within the maritime transportation system and to improve cooperation between indigenous communities and the federal government. Panelists recommended that Indigenous communities be consulted/included in USCG, and other government organizations plans and preparations for environmental response and spills. Specifically, environmental response equipment could be prepositioned in at-risk communities and community members could be trained and employed to provide immediate response in the event of a spill. This could serve as a form of compensation for risk exposure for local communities while providing immediate response in the event of an environmental emergency.

Overall panelists advocated that preventative measures take precedent in not only federal planning but also in funding as well. Additionally, native scientific organizations like the Bering Sea Campus and Research Center can serve as important partners for developing and maintaining domain awareness in the Arctic. Community based monitoring programs could be leveraged in order to understand and respond to the effects of climate change and new economic activity within the Arctic marine environment.

Panelists also highlighted the importance of meaningful Indigenous participation in federal decision consultation that must go beyond a superficial 'box checking exercise' to merely fulfill consultation requirements. Members of the panel frequently cited industry as an example for best practices for consultation and community involvement in decision making. If agencies begin consultations late into their planning or development process, then there may not be adequate time to recruit meaningful engagement from Arctic Indigenous communities. Panelists recommended that consultations be conducted routinely and informally rather than a highly regimented or structured approach.

As a result, meaningful consultation may take time and panelists recommended that federal agencies should ensure consultations begin before decisions are made and early in the planning process. For some communities, translation services may be required. The Federal Bureau of Indian Affairs maintains a database of all 229 federally recognized tribes in Alaska with regularly updated contact points of contact for each tribal organization and is capable of assisting with organizing translation assistance. If comments from community members are not incorporated into the final decision, federal agencies provide an explanation to communities for why specific recommendations were not included. Ultimately a best practice is to maintain early and consistent communication throughout the entire decision-making process.

Overall, the preferred fundamentals of engagement rely upon a partnership approach between the Indigenous communities and the government. These partnerships are developed through meaningful



participation in the public decision-making process and result in co-management and co-production of outcomes that empower Indigenous communities and the government to meet challenges in the Arctic. Improved cooperation and collaboration between Indigenous communities, industry, and all levels of government is vital to ensure that the U.S. maritime transportation system operates to the maximum benefit of all stakeholders and sustains traditional lifestyles and livelihoods of Arctic Indigenous Peoples.

Panel #3: Remarks from Industry regarding the developing U.S. Arctic MTS from commercial interest vantages.



Speakers:

- Ms. Elizabeth “Liz” Cravalho, NANA Corporation Vice President of Lands, Kotzebue, Alaska.
- Ms. Gail Schubert, President and CEO, Bering Straits Native Corporation, Nome, Alaska.
- Mr. David Clarke, President, Qilak, LNG, LLC, Anchorage, Alaska.
- Mr. Nagruk Harcharek, Director, Barrow Operations, Ukpeagvik Inupiat Corporation, Utqiagvik, Alaska.
- Ms. Stephanie Madsen, Executive Director, At Sea Processors, Juneau, Alaska.
- Mr. Crawford Patkotak, Commissioner, U.S. Arctic Research Commission, Chairman, Arctic Slope Regional Corporation and Vice Chairman, Eskimo Whaling Commission, Utqiagvik, Alaska.

The next panel provided an overview of existing commercial activity within the U.S. Arctic MTS from business leaders engaged in shipping, fishing, resource extraction, and more. As mentioned by previous panels, much of commercial activity within the arctic is reliant upon large scale resource extraction activities, such as mining and oil and gas extraction. Local governments in turn, as with the State of Alaska, remain reliant upon these large-scale resource extraction enterprises for the majority of the revenue. The desired outcomes from this panel were to increase exercise participant understanding in current and future plans of Arctic industry activities that utilize or affect the Arctic MTS. This includes industry plans to adapt to new fishing locations, new mineral extraction plans, new initiatives in shipping/transport and tourism.

As an example, 90% of the budget of the Northwest Arctic Borough is based on revenue from Red Dog Mine and the North Slope Arctic Borough derives the majority of government revenue from oil and gas extraction. As the majority of land in Western and Northern Alaska is owned by the federal or state government, economic development opportunities beyond existing legacy resource extraction



projects are limited. Panelists noted that this leaves many local communities with the perception that they lack control over their own resources.

As noted previously, natural gas extraction from Russia's Yamal Peninsula serves as the primary driver of increased maritime traffic along the Northern Sea Route. As the market for natural gas grows as economic activity transitions to the fuel from other fuel sources that produce higher volumes of carbon dioxide, there is renewed interest in exploiting the large natural gas deposits along Alaska's north slope. Organizations like Qilak LNG²⁰ are exploring plans to replicate the methodology of the Yamal LNG project in Alaska. The process would utilize icebreaking capable LNG transportation vessels to transport LNG from the Alaskan North Slope to the East Asian market (with studies that highlight that Alaskan North Slope LNG transits significantly fewer ice laden maritime miles as compared to Yamal LNG. As noted previously, The North Slope LNG is working through a multi-year review process but if achieved, the project could be competitive with Yamal LNG due to the geographic advantages as just described.

Panelists focused specifically on the example of the Red Dog mine as it remains a significant source of maritime traffic in the U.S. Arctic MTS. Between 20-22 cargo vessels transport zinc to market from the mine each year.²¹ Depending on the production of other mines, Red Dog is the one of the top producers of zinc in the world. An important partner and early investor in the mine are NANA Regional Corporation, which has grown to a 1.5 billion USD international corporation serving 15,000 Alaskan Native shareholders. As 20% of employment in the Northwest Arctic Borough is tied to the mine, Red Dog serves as an important base of employment for the NAWB, supplementing traditional subsistence activities within the region. Panelists noted that an International Maritime Organization ban on Heavy Fuel Oil (HFO) could have a significant impact on the mine as cargo vessels serving the mine currently utilize HFO. Panelists noted when considering environmental regulations intended to protect local subsistence livelihoods of rural and Indigenous people, the practical effect of those regulations on economic activity should be considered as well.

Another vital economic sector for rural and indigenous communities in Alaska is fisheries. Marine species, such as the bowhead whale, serve as the basis for cultural preservation and food security alike for coastal villages in northern Alaska. Bowhead whale hunts provide 1.2 million pounds of food to Alaskan Native communities annually. Other species like pollock, salmon, and cod serve as one of Alaska's largest economic exports. As the global middle class has grown, the market for Alaska's oceanic protein markets is expanding. Alaskan fishermen are in direct competition with other fisheries in the Circumpolar North to meet this demand. As Russia does not maintain a ban on commercial fishing in polar waters, Russia in particular maintains a competitive edge as pollock and cod stocks move north (NOAA analysts note that significant stocks of Bering sea fish have moved north from the Southern Bering to the Northern Bering over the recent years, likely as a result of warming ocean waters).

²⁰ Qilak LNG. Qilak LNG. Retrieved June 2021. <https://qilaklng.com/>

²¹ Letient, Henri. (2017). Red Dog Operations - Teck Limited. Alaska. Red Dog Operations - Teck Resources Limited. Retrieved from <http://www.teck.com/media/P5-Red-Dog-Mine>.



Panelists noted the late August 2020 Russian Naval exercises in the Bering Sea may have been done in part to disrupt Alaskan fishing. Finally, panelists noted that while more northerly fishing stocks could provide economic opportunities to communities in the high north, it also will cause fishermen to move further away from available search and rescue support in Dutch Harbor and Kodiak.

Panelists also noted the need for new infrastructure to support both terrestrial and marine commercial activities. In particular, the development of reliable communication and broadband is needed for maritime safety and the facilitation of economic development. The temporary communications systems established by Shell for their offshore exploration activities from 2012 to 2015, which enabled ship to shore communications from the Canadian border to St. Lawrence Island, was cited as a positive model by regional communities. Panelists again noted that portable maritime oil spill response equipment would be welcomed in coastal communities as there is a desire within communities to become more self-sufficient in responding to environmental emergencies.

Panelists explored the importance of balancing traditional subsistence lifestyles with maintaining large scale resource extraction activities in the Arctic which can at times come into conflict. As one panelist noted, “one person’s maritime transportation corridor is another person’s garden.” While subsistence lifestyles and indigenous culture is dependent on the health of the local environment, commercial operations provide income for Alaskan Native communities. Panelists noted that the co-production of knowledge with indigenous communities will assist with tracking changes in fish populations and identifying new commercial opportunities for fisheries exports. Overall panelists noted that indigenous knowledge will be key for enabling industry and the government to mitigate the environmental impact of economic development activities.

Lunchtime speaker: Understanding the current trajectories of Arctic maritime Shipping.

What is industry planning and how should USCG and other responders better prepare?



Speaker: The Honorable Mr. Mead Treadwell, CEO, Qilak LNG LLC Anchorage, Alaska.

Former Lt. Governor Mead Treadwell served as the Arctic Maritime Horizons Lunchtime Speaker and discussed current and future trajectories of Arctic Maritime Shipping. He first built upon the foundation laid by the previous panel of indigenous leaders that food security should be first and foremost the number one priority when considering the Arctic Maritime transportation system.

Mr. Treadwell pointed to the example of Russia, where large scale ice breakers and tankers are disrupting subsistence activities in indigenous communities along the Northern Sea Route. Mr.



Treadwell laid out the specific concern of user conflicts between large vessels and smaller local boats that do not have AIS systems.

The U.S. and Russian Federation have worked together attempted to address maritime safety the Bering Strait through the implementation of the voluntary ship routing measures through the Bering Sea. These rules were agreed upon by Russian and American officials in a period of high geopolitical tension and display the ability of two countries to address Arctic issues in a positive and constructive manner.

Mr. Treadwell expanded further on the example of Russia's development of the maritime transportation system along the Northern Sea Route. Article 234 of the United Nations Convention on the Law of Sea (UNCLOS) grants coastal states the right to regulate ice-covered areas within their national jurisdiction.²² Mr. Treadwell explained that the Russian interpretation of Article 234 enables the government to exercise a 'polar carve out' within UNCLOS, allowing Russia to bypass normal rules of innocent passage and deny entry to vessels attempting to conduct innocent passage through the NSR. Under Article 234, the Russian government has established the Northern Sea Route Administration which provides a 'fee for service' model for use of the shipping route. Charging the equivalent of 500,000 USD for escort through the NSR, this model provides a source of funding to invest further into MTS infrastructure. Mr. Treadwell proposed that such a model creates a more sustainable pathway for the government to improve the safety and reliability of Arctic maritime transportation systems. As safety and reliability is improved, the Arctic MTS becomes more economically viable for commercial operations.

In contrast, current policy of the United States government is to provide such services in ice-covered waters for free, with the U.S. government assuming the cost. In the view of Mr. Treadwell, this makes supporting commercial operators within ice-laden maritime transportation systems costly for the U.S. government and limits the availability of funding to invest in infrastructure to support the MTS. This is in opposition to the Russian model, in which users of the MTS assume the cost and the MTS is supported through a sustainable source of revenue.

While this has allowed the Russian government to develop their Arctic maritime transportation system, Mr. Treadwell believes that it is inherently unstable for one government to have a complete monopoly on an important Arctic shipping route like the Northern Sea Route. Instead, all governments in the region should be involved in the administration of Arctic shipping routes under the auspices of UNCLOS.

Mr. Treadwell pointed to the proposed U.S. Senate Bill 1177 or the SEAL Act as one proposal for a fee for service model for administering U.S. Arctic.²³ The bill proposed by Alaska's Senate Delegation and U.S. Senator Angus King of Maine would charter a seaway development corporation in the Arctic

²² The Fletcher School's LL.M. Program in International Law & Maritime Studies Program. (2017) Law of the Sea: A Policy Primer. Chapter 8: The Arctic and the LOSC. The Fletcher School, Tufts University. Retrieved <https://sites.tufts.edu/lawofthesea/chapter-eight/>.

²³ 116th Congress. (2019-2020) S.1177 - SEAL Act. Senate - Commerce, Science, and Transportation. Retrieved May 2021 <https://www.congress.gov/bill/116th-congress/senate-bill/1177/text>



that would collect voluntary user fees in order to fund infrastructure development and environmental security in the region. Mr. Treadwell also pointed to international proposals to create a so-called “UBER for icebreakers” which would allow commercial operators to request icebreaker support from a pool of available vessels from across the Circumpolar North. Other fee for service models could operate as a membership organization, which would aid operators when needed in a similar model to the American Automobile Association (AAA) which provides roadside assistance for members.

Finally, Mr. Treadwell observed that insurance rates play the decisive role in whether commercial operators choose to utilize Arctic shipping routes. Unless investments are made to improve search and rescue coverage or the reliability of icebreaker support, insurance rates will remain high, and operators will be deterred from adopting Arctic shipping routes. Mr. Treadwell concluded that the U.S. and other Arctic nations have done much better at getting rules in place than they have at developing resources to enforce those rules.

Panel #4: Remarks from Arctic MTS Operators and Analysts.

Current experts in industry and analysts provide their insights to developing U.S. Arctic MTS.



Speakers:

- Dr. Lawson Brigham, CAPT, USCG (Ret), Fellow, U.S. Coast Guard Center of Arctic Study and Policy, Global Fellow, Polar Institute Woodrow Wilson Center and Advisor, U.S. Arctic Research Commission, Eagle River, Alaska.
- CAPT Ed Page, USCG (Ret), Executive Director, Marine Exchange of Alaska, Juneau Alaska.
- CAPT Buddy Custard, USCG (Ret), President and Chief Executive Officer of the Alaska Chadux Network, Juneau Alaska.

The next Arctic Maritime Horizons plenary panel featured a discussion of Arctic MTS operators and analysts who provided insights into safety technology, domain awareness, and management. Desired outcomes from this panel were to increase exercise participant understanding in current and future aspects of the U.S. Arctic MTS in terms of safety, domain management, commercial trajectories, limitations and policy matters in association with the International Maritime Organization. Accordingly, the panel first reviewed the organization of the Arctic Marine Shipping Assessment of 2009 issued by the Arctic Council's Protection of the Arctic Marine Environment (PAME) working group.²⁴ While the assessment analyzed the state of Arctic shipping in the late 2000s, the Assessment stands as a foundational document for understanding the Arctic maritime transportation system and its progression since 2009. The report also marked an important moment in circumpolar cooperation as

²⁴Brigham, L. W., Ellis, B., Arctic Council. Protection of the Arctic Marine Environment Working Group, & Arctic Council. (2009). Arctic marine shipping assessment 2009 report. Akureyri, Iceland: Arctic Council, PAME, Protection of the Arctic Marine Environment. Retrieved <https://www.pame.is/projects/arctic-marine-shipping/amsa>.



the document was organized and approved by all eight Arctic nations on the Arctic Council. While many of the report's more detailed recommendations are still worthy of consideration in 2021, PAME has issued an updated set of recommendations in May 2021.²⁵

The original AMSA produced three general recommendations for Arctic government actors:

1. Enhance Arctic Marine Safety,
2. Build the Arctic Marine Infrastructure
3. Protect People and the Environment.

The Assessment also illustrated four different scenarios of future traffic with differing levels of overall volume and stability of governance (Figure 8). 'Arctic Race,' the highest demand and most unstable governance scenario, envisioned an economic 'rush' on Arctic resources with Arctic governments being slow or unable to implement rules and regulations. Under this scenario, the Arctic would be a highly competitive environment for commercial and geopolitical interest and international consensus would be difficult or impossible to achieve. In contrast 'Polar Preserve' envisions a highly regulated Arctic with low demand where much of the region is limited to human activity and designated as a nature preserve. 'Polar Lows' would entail a low demand for resources with limited governance as result, leaving the future of the region uncertain and vulnerable to instability. The final scenario "Arctic Saga" would see a high demand but stable governance on the part of individual Arctic nations and the international community. A stable, rules-based order with high compliance amongst regional actors would generate a balance between economic development and preservation of the Arctic environment and indigenous culture.

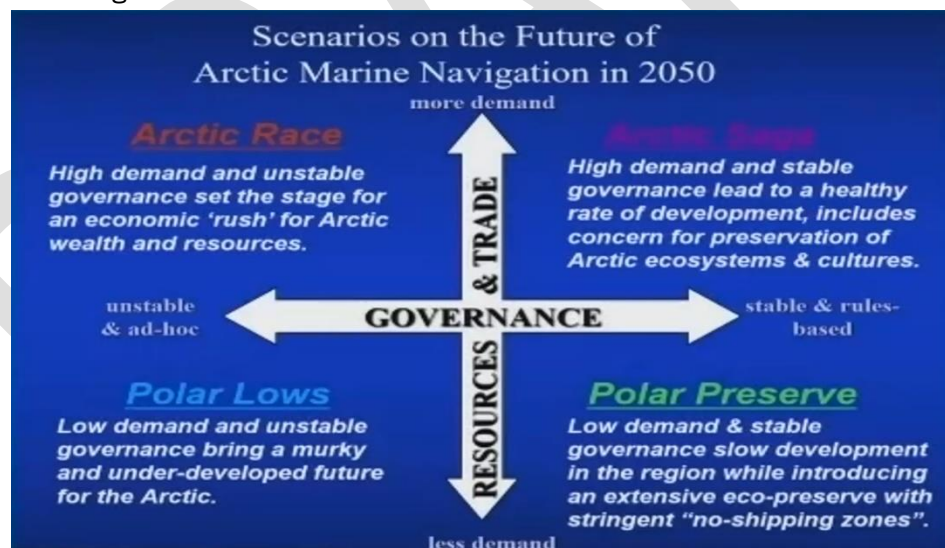


Figure 9 Scenarios on the Future of Arctic Marine Navigation in 2050 from the Arctic Maritime Shipping Assessment 2009. Slide was presented by as part of panel.

²⁵ Protection of the Arctic Marine Environment (PAME) Secretariat. (2021) Arctic Marine Shipping Assessment Updated Recommendations. Akureyri, Iceland: Arctic Council, PAME, Protection of the Arctic Marine Environment. Retrieved <https://pame.is/document-library/pame-reports-new/pame-ministerial-deliverables/2021-12th-arctic-council-ministerial-meeting-reykjavik-iceland/784-amsa-recomendations-2021-update/file>.



Panelists observed that the great ‘controller’ of Arctic shipping remains sea ice coverage. Even with annual reductions in total sea ice coverage, the region will not be totally ice free. The presence of ice will still continue to serve as an obstacle for mariners and coupled with 24-hour darkness in the winter, panelists expect that international maritime traffic will remain seasonal regardless of the loss of ice coverage later this century. Given commercial operators in general value public reputation more highly than profit, the risk of an environmental incident and resulting public fallout could deter operators from adopting transpolar shipping routes regardless of economic viability.

As for the state of Arctic shipping today, the panel agreed with the general assessment of previous speakers that the international community has made progress in implementing rules and regulations for marine traffic in the Arctic region. The IMO Mandatory Polar Code places clear guidelines for marine pilots, requiring polar certification for Arctic operations and a polar operation manual on board in order to operate in polar waters. Panelists noted the focus on operator competency is critical for ensuring safety in polar waters. As noted previously, these regulations would have likely prevented most vessel operators from diverting to the Northern Sea Route if an event like the Suez obstruction were to occur in the summer shipping season.

Specifically in the U.S. Arctic context, panelists explored options for expanding the USCG ability to cooperate with industry to leverage operator experience within the region. As noted in the USCG Maritime Commerce Strategic Outlook and the Arctic Strategic outlook, ‘Unity of Effort’ and ‘Partnership’ are underlying themes for successful governance of the maritime transportation system. Panelists noted that frequently such strategies are interpreted into a “whole of government” approach which takes advantage of existing government assets from a variety of agencies from across all levels of government. Panelists suggested that a more inclusive approach would be necessary within the context of the Arctic as the industry, specifically the resource extraction industry, has a long history of engaging in large scale operations within the U.S. Arctic.

One potential option for implementing this strategy suggested by panelists would be the creation of a Federal Advisory Committee (FACA) Committee composed of leading industry experts with Arctic operational expertise to advise the USCG on Arctic issues. This body would help the USCG align investments into the MTS for the maximum benefit for commercial operators and the public. Forums like these would also allow for industry to develop best practices and align their operations accordingly. A successful example of this model can be found in the recently developed Best Practices for Western Alaska Lightering Operations document produced by the Best Practices for Western Alaska Lightering Operations Committee.²⁶ Panelists also noted the progress that has been made in maintaining domain awareness and regulating operations through the partnership with the Alaska Marine Exchange which has enhanced the ability of the USCG to monitor automatic identification systems (AIS) on vessels of a significant size. Panelists stated that a systematic approach that brings all voices together to be heard equally would best address the diversity of users within the Arctic MTS.

²⁶ Western Alaska Tanker Lightering Best Practices Committee. (2020) Best Practices for Western Alaska Lightering Operations. 2020 Lightering Season. Retrieved <https://alaskaosro.org/wp-content/uploads/2020-Western-Alaska-Tanker-Lightering-Best-Practices-Adopted-3.11.2020-v.1-1.pdf>.



Panel #5 Blue economy and the Arctic.



Speakers:

- Mr. Taylor Holshauser, Alaska Ocean Cluster, Anchorage, Alaska.
- Mr. Garrett Evridge, Alaska Ocean Cluster, Anchorage, Alaska.

The final AMH21 panel considered aspects of the development of oceanic natural resources and the state of ocean-related industry in the Arctic. While definitions of the 'Blue Economy' vary, the World Bank describes the term "blue economy" as the sustainable use of ocean resources for economic growth and community development. Within the context of the U.S. Arctic, this conversation normally revolves around fisheries and the fishing industry which serves as both the basis of subsistence and economic activity for much of coastal Alaska. Normally, the discussion of blue economy also extends into aqua and mariculture practices as well. In sub-Arctic maritime Alaska, kelp farming is one practical measure that is advancing as a new and potentially valuable blue economy development, based on the advantages of Alaska's resource rich coastal waters.

Given the importance of fisheries to the Alaskan economy, panelists considered industry innovation in the sector. Despite fierce international competition from other regions in the High North, (and Russian fisheries in particular), panelists observed that the Alaskan fishing industry has somewhat lacked innovation and has changed relatively little since Alaskan fisheries hit their peak profitability in 1989 and 1991 respectively. The average age of commercial fishing gear is nearly 30-40 years old, and the average age of fishing crews is aging as well.

While Alaskan fishing industry appears to stagnate, opportunities for innovation exist. Industry innovation will be fueled by entrepreneurs responding to local needs in the fishing industry. Successful examples cited by panelists include Blue Ocean Gear which has developed technology to track fishing gear like crab pots or fishing nets, allowing crews to recover lost equipment and save on costs.²⁷ The adoption of technologies like Blue Ocean Gear could improve the competitiveness of Alaskan fisherman on the international market. Additionally, as broadband access improves in remote communities, remote training and technical assistance will enable Alaskan fishing crews to adopt more complex technologies that require technical training. On a similar vein, panelists pointed to the importance of vocational training opportunities to expand the next generation of fishing crews and recruit more young talent into the industry.

Exercise Summary (Day Two...6 May 2021)

ADAC planners find tabletop exercises oriented to crisis scenarios as a useful methodology to gain insights and understanding and a suitable complement to plenary presentations. People generate incredibly useful and innovative solutions when provided realistic and tangible scenarios. Accordingly, ADAC constructed Arctic Maritime Horizons 2021 "Day 2" as a follow-up from Day 1's (5 May 2021) plenary discussions built around a short series of three "two-step" exercise moves, open

²⁷ Blue Ocean Gear. Blue Ocean Gear. Retrieved June 2021 <https://blueoceangear.com/>



fully to both in-person and virtual participants. In sum these moves used a fictitious “Federal On-Scene Coordination (FOSC) Center with a variety of exercise injects compiled into ADAC generated Graphic videos to quickly generate ideas/brainstorm via dynamic and focused group collaboration. These videos are located at: https://arcticdomainawarenesscenter.org/EventHub_Horizons21

Note: In order to gain best and unfiltered exercise participation, ADAC used “Chatham House” rules (no-direct attribution of any particular remark) made by any exercise participant.

As a catalyst for investing participants into the planned tabletop activities, the following Seven Topic Areas were considered in the development of the scenarios to spark important and needed discussions among exercise participants.

1. What are some needed/definitive steps, useful for improving Bering, Chukchi and Beaufort Seas Waterways Management? (In light of rising traffic and increasingly difficult to predict meteorological conditions as well as surges in both technology innovation and emergent commercial pursuits in the region).
2. Improving understanding on the current trajectory of Arctic maritime activity, specifically commercial activity. In sum, what is industry planning and how should USCG and other responders better prepare? What are the impacts if the USCG does the same, more, or less with respect to planned safety measures in association for the Arctic MTS?
3. Blue economy and the Arctic. What are the indicators and potentials to advance ocean-related industry into the Arctic and what are the implications as this relates to safety and environmental security in the maritime and coastal regions?
4. Compare and contrast Northern Sea Route, Northwest Passage activity, and projected activity for these two routes as well as the Transpolar shipping route as relates to U.S. Arctic MTS implications? Included in this discussion is an examination of insights that can be obtained from Russia (as research can discover) and Canada (via soliciting Canadian exercise participants)...particularly Transport Canada and Canadian Coast Guard.

The following is a review of each exercise move and the corresponding discussions.



Exercise Move #1: Disabled oil tanker Bering Straits blown onto known obstacles.



Figure 10 Fairway Rocks in the Bering Straits

Exercise Scenario: Making a transit during through the Bering Straits during a rough and difficult fall storm, a fuel oil tanker with petroleum products needed for heating homes in remote villages along the Beaufort Sea coast is disabled southeast of Little Diomed Island in the Bering Strait, and is quickly driven from the sea lanes to Fairway rocks blocking movement of maritime commerce in the U.S. Arctic MTS and creating a significant response challenge. The storm results in the vessel to be driven hard on the rocks and causing a rupture of the tank necessitate the need for closing

shipping lanes, in order to affect spill response and potentially impacting subsistence activities (based on safety & hazard concerns). Regrettably, the grounding occurs just as annual fall subsistence harvests commence. Complicating response is the remote and austere location and an unusually persistent season of low clouds, winds, and precipitation that complicates the response.



Figure 11: Screen shot from Move 1 Video.



Exercise Move Summary:



The First Movement and other subsequent Movements were framed as an examination of the Maritime Transportation, not the incident response system. Therefore, incident response served as vector by which participants judged what support is available within the local maritime transportation. Accordingly, participants focused their discussion on how to

resume commerce following the incident and how to transport response equipment to the scene of

Figure 12 Participants Debate Next Steps in Movement 1

the incident. The discussion also covered how the incident and the response could

impact the local environment and maritime activity from local communities. Ultimately participants considered infrastructure improvements and policy changes that could better support commercial activity and subsistence use within the U.S. Arctic MTS.

One of the first components of the MTS system participants discussed was vessel monitoring and traffic management. Participants noted that the Coast Guard's immediate first steps would be to put a watch on the vessel, contact the vessel master to ascertain the situation, and determine if this stranded vessel posed a serious hazard to vessels known to be in the area. As a response would be required by USCG, District 17 command would consult with existing response strategies to inform their decision making. Given that numerous salvages tow, lightering, and other response vessels would eventually respond to the scene, participants noted that alternative routing measures or advisories would likely be issued as more assets arrive on scene.

Participants noted that if the USCG observed the vessel behaving abnormally via AIS feed, the USCG would then contact the vessel master in order to determine if there was an issue. Anecdotes provided by participants highlighted the fact that often time vessel masters wait too long before calling for assistance in the event of a critical mechanical failure. When calls for assistance are finally made, the vessel could be in a fair worse situation than if the USCG generated an early response. Therefore, accurate monitoring of vessel activity is key as it would allow USCG D17 in this situation to contact with the vessel master, determine an emergency response, and issue assets to the region while the vessel's crew attempt to resolve the situation. Ultimately early access to information gives USCG critical time to advance an effective response.

Participants also noted the other half of informational awareness is information on response capabilities. In remote regions especially, access to a timely database of available response assets, their distance, and contact information would allow the USCG to quickly organize a response. This database would include information on all vessels in the region including commercial vessels with towing capabilities or local government SAR teams in the region for example. Participants also stressed the difficulty of getting into contact with remote communities. The City of Diomed for



example has one phone line at the post office serving a little over 100 residents, therefore getting in contact can be slow (to very slow). Therefore, participants noted the need for USCG to maintain relationships with local communities in order ensure coordination in the event of an incident.

If the vessel is determined to be hazardous to local traffic, USCG would disseminate rerouting instructions to nearby vessels. If the stranded vessel began leaking oil, USCG could implement restricted navigation areas and the closure of waterways. Participants noted that the vessel's location would likely impact traffic from Red Dog Mine if it were to occur during the mine's shipping season. Participants frequently observed that weather conditions will dictate what assets are capable of responding to the situation. Severe winds, which are frequent around the Diomed Islands, would likely prevent any response by air, further complicating the response.

The next priority would be to remove all remaining personnel and fuel oil from the stranded tanker. Crewmen would be rescued via helicopter if weather allows. Participants noted that industry and local vessel traffic would need to be leveraged as they could arrive on the scene much more quickly than the USCG. The USCG would then determine the closest available tankers and tugs available to arrange a lightering operation to remove the fuel. Participants noted frequently throughout the exercise that such an operation would be highly weather dependent as hazardous weather conditions could put additional ships at risk and provoke further incidents. Participants noted that calls for assistance should not be limited to the U.S. side of the Bering Sea and USCG would determine if any Russian assets would be available to assist. This would fulfill Russian obligations under a Joint Contingency Plan recently signed by the USCG and Russian officials which covers scenarios of this nature. Participants noted that most available tug operators are concentrated in the Aleutians, meaning response times would be potentially several days long.

Given that USCG would need to rely upon regional response assets, participants stressed the importance of regional response plans as important component of the MTS system. Regional response plans should be accompanied by training and drills that include local communities and commercial operators.

Additionally, participants observed that with limited regional operators in the region, the recruitment of tugs and other assets to assist with a large-scale response to a single incident, reduces the capacity of the region as a whole to maintain normal operations. As tugs are recruited from throughout the region, less are available to assist other vessels in the region should they need assistance. Therefore, a system wide approach is necessary when approaching regional response operations.

While a lightering operation was arranged, USCG would determine if the vessel needs to be towed to another location where a lightering operation can be conducted safely. Should the vessel be at risk of drifting toward further obstacles or presenting a risk to a known environmentally sensitive area, USCG would determine a suitable location to tow the vessel once transportation is available. Participants noted the difficulty of determining a suitable location without previously established Ports of Refuge. While areas like Point Clarence have been specified as Ports of Refuge in oil spill response plans, it is not officially designated as one within the MTS. Instead, the USCG would be put



into the situation of determining which community or region would assume the risk of environmental pollution from the stranded vessel. Participants noted that the scenario highlights the need for MTS managers to work with local communities to determine acceptable Ports of Refuge in the Arctic. This would allow decision makers to leverage community knowledge and avoid establishing Ports of Refuge near sensitive subsistence areas and important wildlife habitat. In addition, materials and equipment could be pre-staged in communities near ports of refuge to be deployed in response to a stranded vessel or oil spill.

Early in the exercise, participants discussed the need to identify how the vessel master made the risk decision to precipitate the scenario in the first place. This was highlighted early as it is important to understand all of the information available to the vessel master at the time of the incident in order to understand the vessel master's decision making. This would be informative for prevention of additional incidents in the region and the future. Participants noted the importance of timely communication of information like weather conditions or known hazards in the region as well. If such information had been communicated in advance, it is likely the vessel master could have avoided the incident in the first place.

Remaining questions from the scenario included:

- In order to inform / incentivize enhanced operational risk management on the prevention side, how do we put ownership of the risk downside on the potential MTS risk taker versus the potential victims?
- What is the right balance between investments in response assets and preventive measures?
- Are there seasonal preparations made outside of industry for high traffic or high-risk seasons?

Exercise Move #2: Congested waterways impact subsistence hunting.

Exercise Scenario: Due to unpredictable weather patterns, which resulted in a number of significant



Figure 13 Graphite Creek Mine near Teller AK

fall and early weather storms across the Bering and Chukchi Sea regions, shipments from a new, very large and economically significant mine on the Alaska's Northwest coast (modelled on the Graphite Creek mine near Teller Alaska) are well behind in delivering ore shipments as Spring arrives, and shareholders are insistent that every effort should be made to expedite movement of ore. Unfortunately, as shipping



traffic gets underway in relieving the backlog, subsistence hunters, relying on the Spring subsistence Bowhead harvest find the congested traffic as critically disruptive to the hunt and are seeking redress to prioritize their subsistence activities over the movement of ore barges through the region. Complicating factors are an early warming spell coupled with heavy rains resulted in spoiled food stored root cellars due to unexpected thawing conditions and rain that caused heavy snow melt. Accordingly, regional resident food resilience is greatly compromised.

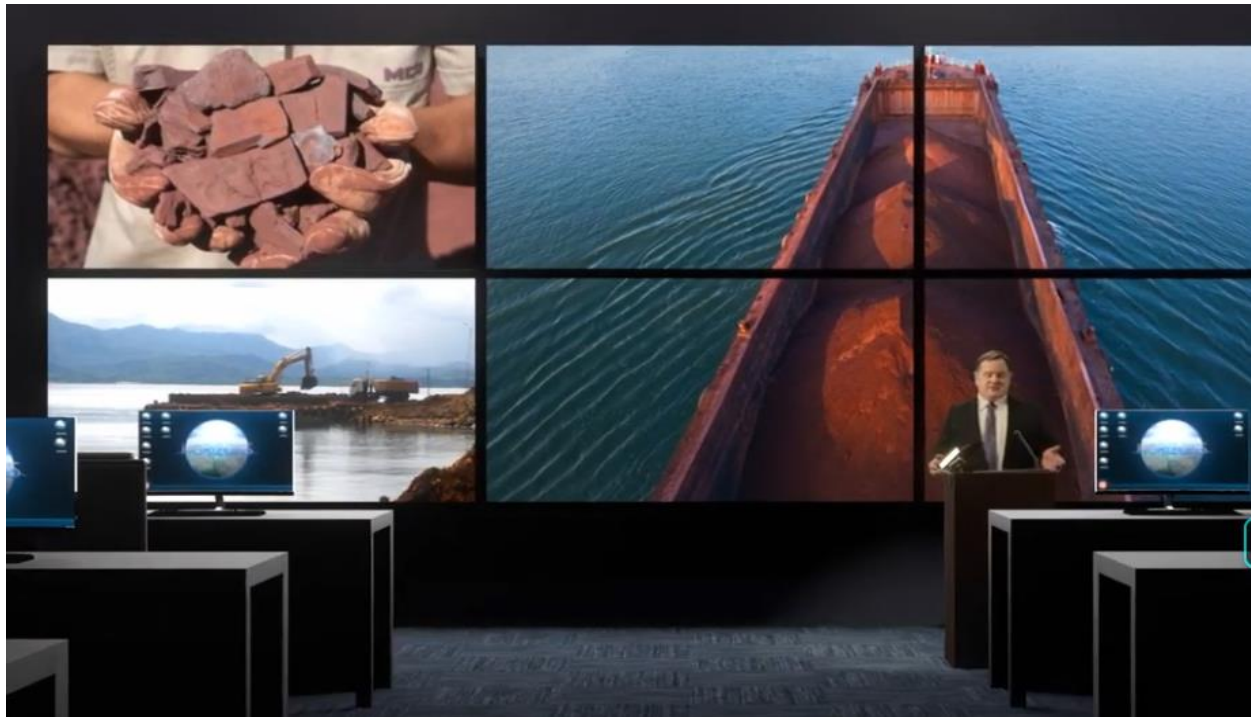
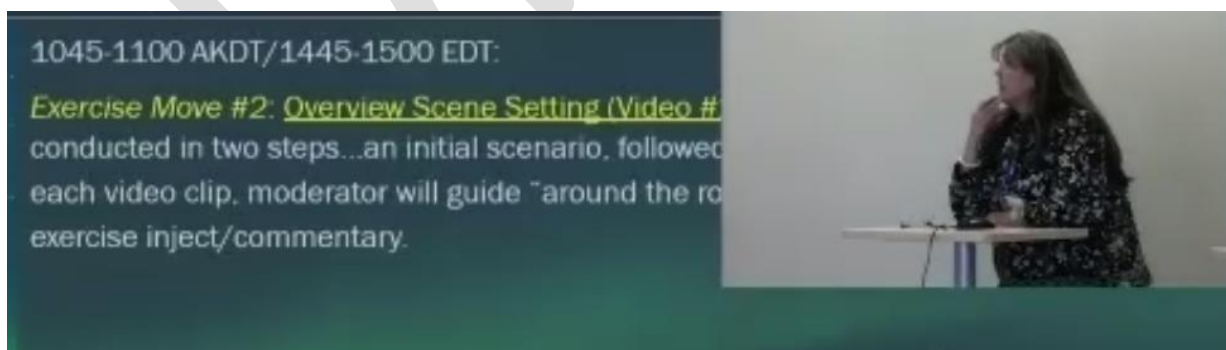


Figure 14: Screen shot from Move #2 Exercise Video

Exercise Move Summary:



Participants were quick to identify that the situation represented a lack of preventative communication between local subsistence hunters and industry. Some participants who had experience with the efforts of Red Dog Mine to avoid activities that interfered with subsistence found



the scenario to be unlikely as industry in the past has been highly successful in avoiding user conflicts along waterways. Pointing to the need for industry to maintain positive perceptions within local communities, most industry operators would avoid conflicting with subsistence activities at all costs regardless of the financial incentive. The negative public perception that would result from a collision or loss of life would be unacceptable and ultimately a worse outcome than lost revenue.

Regardless, participants avoided ‘fighting the scenario’ and instead identified constructive methods to avoid user conflict. Participants first pointed to the need for industry to engage and consult with local communities in order to determine peak subsistence seasons and employ alternative routing measures that avoid subsistence activities. Additionally, schedules for cargo vessel arrivals, departures, and routes could be disseminated to local hunters in order to enable informed decision making and ultimately avoid user conflict. Participants again returned to the example of Red Dog Mine which funds a subsistence committee to discuss and address issues with the local community. Tek, the operator of Red Dog Mine, as a result does not begin ore transports until the conclusion of the subsistence hunting season. In addition, participants noted that the Tek has established policies to avoid interference with caribou migration in their terrestrial activities. Ultimately industry funded forums like those employed at Red Dog or regional councils like a local Waterway Management Council could create decisions on vessel lanes independently of the USCG. Such forums would prevent the need for USCG to engage in the situation entirely.

Participants also identified tools that could be employed in order to avoid user conflicts. Dynamic geofences could be employed by industry or the USCG to alert vessel operators to areas of high subsistence activity. Such tools would allow USCG to alert vessel masters of when they enter areas with a high risk of user conflict and inform their employers when vessels behave in high-risk behaviors. Additionally, small AIS systems could be equipped on subsistence hunting vessels to allow larger vessels to ‘see’ small craft and avoid collision. Participants did note that such systems could be prohibitively expensive for many subsistence hunters. Therefore, participants postulated that grant programs could be developed and funded by the USCG in coordination with the industry groups and boating safety organizations with the purpose of equipping subsistence vessels with AIS systems.

Participants also identified that marine mammal observers stationed on vessels, which is often required for large vessel operations in Alaska, would assist in avoiding the vicinity of migrating whales or other marine mammals targeted by subsistence hunters. Observers could be recruited from the local population as they have knowledge of common hunting areas and alert vessel operators to areas that should be avoided. This would not only allow vessel masters to make informed decisions but also provide employment opportunities for local communities. Participants pointed to successful examples in Canada²⁸ and Shell’s offshore operations from 2012 through 2015.

28 Kelley, K. (2017) Nilliajut 2: Inuit Perspectives on the Northwest Passage Shipping and Marine Issues. Inuit Tapiriit Kanatami. Ottawa, Ontario. Retrieved https://www.itk.ca/wp-content/uploads/2018/01/NilliajutTextPages_Draftv4_english_web.pdf.



Overall, participants concluded that much of the situation could be prevented through successful consultation at the local level between indigenous communities and industry without the need for USCG to be seriously involved.

Remaining questions from the scenario included:

- What forums need to be established, reinvigorated, etc. to prevent conflicts like this in future and devolve decision making to local level?
- How can industry implement routing measures that reduce noise pollution impact on local marine wildlife?

Lunchtime Presentation Day 2: Understanding the Developing Alaskan and U.S. Arctic Economic Outlook

What possibly can the maritime prevention and response community anticipate in terms of economic growth?



Speaker: Bill Popp, President and CEO, Anchorage Economic Development Corporation, Anchorage Alaska

On Day Two of the Arctic Maritime Horizons workshop, Bill Popp, President and CEO of the Anchorage Economic Development Corporation, served as Lunchtime Speaker and provided a presentation reviewing the current state of the Alaska economy and projections of expected economic change in the coming decades.

Mr. Popp began with an explanation of the total economic impact of the COVID-19 pandemic in Alaska. The city of

Anchorage, a city of 294,000 residents, lost 22,000 jobs in the first month of the pandemic. The state overall lost approximately 40,000 jobs, primarily in fossil fuel, food and hospitality, and mineral industries. The pandemic occurred while Alaskan remained mired in a long-term recession since 2015 due to the decline of oil prices. The shock of the pandemic exasperated the decline of oil and gas employment which has lost 50% of its workforce since 2015. Despite this Alaska maintains a solid customer base for oil and gas exports to the Western United States. Air transportation and mining remain relatively unimpacted compared to other sectors of the economy. Air cargo through the Ted Stevens International Airport in Anchorage grew, becoming the fourth busiest cargo airport in the world in terms of tonnage.

The decline in the oil industry resulted in a fiscal crisis for the State of Alaska as 90% of the Alaskan state government revenue relied upon rents collected from the oil and gas industry. The State government has made spending cuts, drained saving accounts, and is now utilizing revenue from the Alaskan Permanent Fund. Mr. Popp characterized the government as ‘shifting to an endowment model of government funding.’ The decline of oil is expected to continue as peak oil demand could



occur sometime in the next decade. This will force Alaska to pivot to other economic activities in order to support quality of life and current population levels.

Mr. Popp identified several economic sectors that are expected to expand in the future. Tourism is expected to recover following the pandemic and could expand in 2022. However, Mr. Popp argued that the industry in Alaska is currently too reliant upon the cruise industry which brings the majority of visitors to Alaska. Instead, Mr. Popp suggested the State should do more to attract individual passengers to visit Alaska. Fisheries, as noted before, are also a bright spot, but the industry faces challenges. Mr. Popp noted that farmed fish, especially genetically modified fish, will be a source of competition. Finally, Alaska could be an attractive location to recruit remote workers, or employees who work from home or independently from their employer. However, the state will need to overcome limitations in communication infrastructure in order to be competitive with other Western U.S. States.

Mr. Popp concluded by exploring what Alaska's economic future could mean for shipping and the Arctic maritime transportation system. As noted by previous panelists, the infrastructure supporting the Arctic maritime transportation system will need to be improved in order to demonstrate reliability and safety to insurers and scheduled shipping companies. Given the decline in the price of oil and environmental concerns regarding oil shipments in the Arctic, traffic associated with the oil industry is expected to remain stable and slowly decline. Instead, Mr. Popp expects that other natural resource exports like mining, gas, and marine protein are more likely to serve as drivers of increased traffic and economic growth in Alaska.

Exercise Move #3: Chukchi Sea & Bering Straits Economic Boom and associated Security Concerns in U.S. and Russia.



Figure 15 St Lawrence Island in the Bering Straits region

Exercise Scenario: MTS activity in the Bering and Chukchi rapidly rises as a result renewed pressure for Petroleum due to the of a decision by the Organization of the Petroleum Exporting Countries (OPEC) to curtail global production in order to drive higher prices per barrel. Demand for oil rises rapidly, resulting in oil sector to quickly assess and initiate drilling activities in the Chukchi Sea. Meanwhile, rising temperatures across the Arctic reach the threshold in which maritime transit of the Northern Sea Route, Northwest Passage and even limited seasons of

Transpolar routes are feasible. Sensing economic advantage, Lloyd's of London and other insurance companies approve bulk carriers and container vessels for Arctic transit through the Bering Straits.



Complicating matters, a new discovery of on and near shore gold deposits (similar to the gold sands found near Nome in the 1900-1901 strikes) is made on St Lawrence Island Alaska that creates a new rush for wealth in the Bering Straits region. A number of hastily arranged mining enterprises arrive with little notice to Gambell village on St Lawrence Island eager to strike out and make their mining claims. Some of these enterprises are marginally legal and create a web of concerns to law enforcement, which was totally ill prepared to cope with the economic opportunists, who seem impervious to Tribal and local government concerns. Air and marine traffic rise dramatically, all in a haphazard fashion, which concerns and causes the Russian Federation to commence a series of reactionary/protective measures to include military exercises that restrict transit through Russian waters, forcing yet more traffic into the U.S. EEZ.



Figure 16: Screen shot from Exercise Move #3

Exercise Move Summary:

First, participants identified the need for the USCG to establish assets on scene in order to monitor the unfolding situation, collect information, and maintain a persistent and potentially deterrent presence. Again, establishing aerial reconnaissance would be highly dependent on the weather. If aerial assets could be deployed, C-130s would be deployed to maintain visual contact and provide information back to USCG District 17 commanders. Participants advised that the ability to continuous aerial reconnaissance would most likely be limited by weather, therefore the deployment



of a surface asset like a USCG Cutter would likely be necessary. If USCG incident commanders determine that more robust on the scene presence is necessary, a USCG Cutter would be deployed onto the scene. Participants also noted that unmanned aerial vehicles deployed by surface assets would be highly valuable for providing aerial surveillance in the event that a C-130 or other assets cannot arrive on scene.

When considering the role of the USCG and other participants represented in the exercise, participants identified that contact with the flag nation of the vessels would be delegated to the State Department. The State Department, with the assistance of officials in the Department of Defense and the Coast Guard, would attempt to establish contact with diplomatic contacts from the flag nation-state and would prepare to file diplomatic protests if illegal activity is occurring. Instead USCG's role would be to monitor the situation and collect information to inform the response of higher-level issues. Additionally, participants identified that communication should be established with authorities from the Russian Federation as there is a mutual interest in preventing incursions of this nature. Diplomatic channels would be established with the Russians through both higher-level channels in the State Department and direct channels between the USCG and the Russian Border Guard who maintain a relationship that could be leveraged in this situation.

A tertiary role of the USCG would be to manage any local capacity issues that could arise from the scenario. The USCG would alert local vessel masters of the situation and make routing recommendations if the vessels pose a potential conflict with other users in the area. Participants noted that if mining operations were to block traffic through the Bering Strait, this would present a high-level national security concern to both the United States and Russian Federation. If sections of the Bering Strait were obstructed by this activity, routing measures would be in accordance with the voluntary routing measures established by the IMO in accordance with Russian authorities and vessels could be diverted to transit the Russian section of the Strait.

The USCG would rely upon existing tools including Captain of the Port Authority to inform vessels of any regulatory violations and enforce the law if necessary. The Alaska Marine Exchange would provide information to incident commanders in order to monitor vessel behavior and traffic patterns. Participants noted that enforcement of the law does not require the USCG to directly intervene if violations occur. In a sensitive situation as envisioned by the scenario, where intervention could provoke a diplomatic incident or potentially lead to direct conflict, the USCG could instead record violations and issue fines or seize vessels when they eventually dock at U.S. ports. The USCG Port Authority would also stand up their civil law unit and consult with lawyers regarding the appropriate enforcement of the law.

Additionally, participants noted that there are limitations in monitoring underwater activities like mining or dredging. Concerns were expressed that illegal dredging and legal dredging operations could be hard to distinguish from one another. However, participants emphasized that the Bureau of Ocean Management and National Oceanic and Aeronautical administration would be leveraged to provide information to determine areas where dredging operations distinguish illegal and legal areas for dredging activity. Therefore, tools for the detection of silt plumes would be highly valuable in this theoretical situation. Additionally, unmanned underwater reconnaissance vehicles would also be



highly valuable in this scenario and could be leveraged for domain awareness and monitoring of illegal activities.

Participants identified numerous complicating factors that could result from the incident. One particular concern is the potential impact that illegal dredging operations could have on local marine mammal wildlife. Activities like marine mining could be identified as a potential risk to local whale populations and provide the International Whaling Commission (IWC) with an opportunity to intervene and reduce the quota allotments for local bowhead whale harvests. As the IWC whaling quota is shared by indigenous populations on both Alaska and Chukotka, a reduction potentially imperils the food security of coastal indigenous populations in both the United States and Russia. Participants noted that in previous experiences of subsistence food insecurity, residents found it difficult to seek aid food insecurity issues do not fit the normative definitions of economic disasters.²⁹

Exercise Polling Results

Throughout Arctic Maritime Horizons 2021, a series of polls were conducted in order to allow the event's participants an opportunity to provide direct feedback on policy questions that emerged from the event's proceedings and exercise. These polls were designed to inform USCG on the emergent consensus on policy recommendations and next steps in managing the Arctic MTS. Each question allowed for both a multiple-choice response and write-in answer. Both in-person and online attendees participated in the polls.

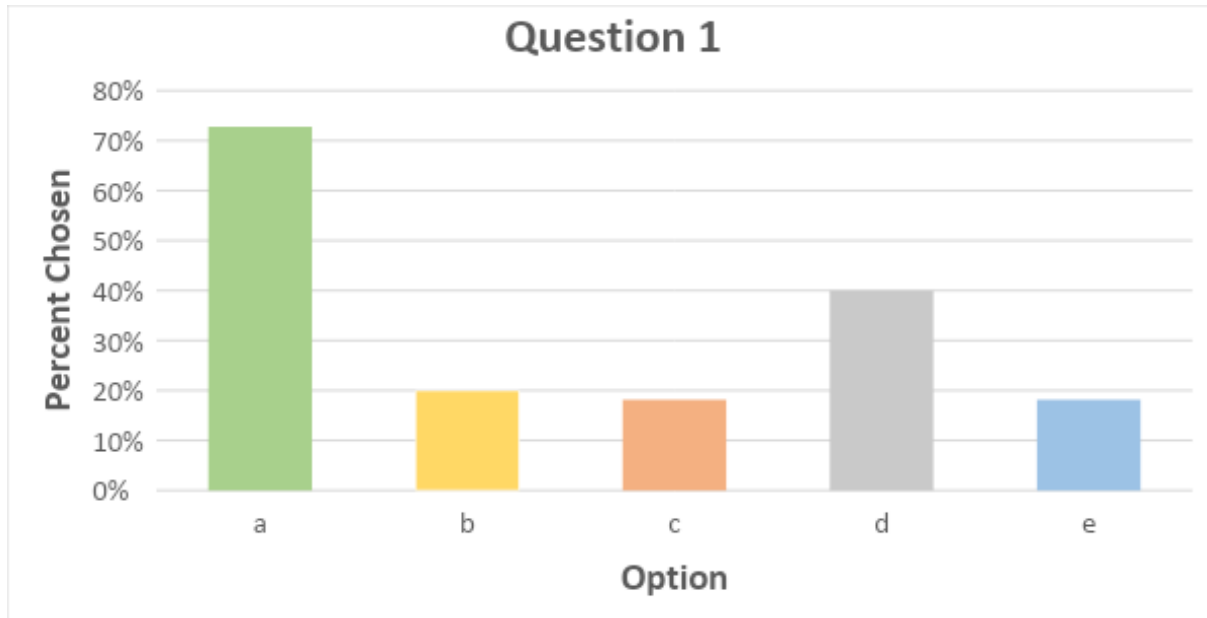
AMH21 "Day 1" Polls (5 May 2021)

1. **What are some needed/definitive steps, useful for improving Bering, Chukchi and Beaufort Seas Waterways Management? (In light of rising traffic and increasingly difficult to predict meteorological conditions as well as surges in both technology innovation and emergent commercial pursuits in the region).**
 - a. Option 1: Charter a significant study to research the problem, chartered by HQ USCG that includes representatives from stakeholder communities (such commercial and private mariners, port authorities, marine safety and service providers, regional government and tribal authorities, State of Alaska, Federal agencies, etc.?)
 - b. Option 2: Establish a survey and distribute across the stakeholder communities as a much smaller/tightly scoped effort than option 1.
 - c. Option 3. Publish a website and advertise across the stakeholder communities for a given period of time (such as 8 weeks) requesting people to post their ideas/suggestions.
 - d. Option 4: All of the above?

²⁹ Caldwell, S. (2013) Disaster declared for subsistence walrus hunt on St. Lawrence Island. Anchorage Daily News. Published September 2, 2013. Retrieved <https://www.adn.com/rural-alaska/article/disaster-declared-subsistence-walrus-hunt-st-lawrence-island/2013/09/03/>.



e. Other? Write in:



Responses for “Other”

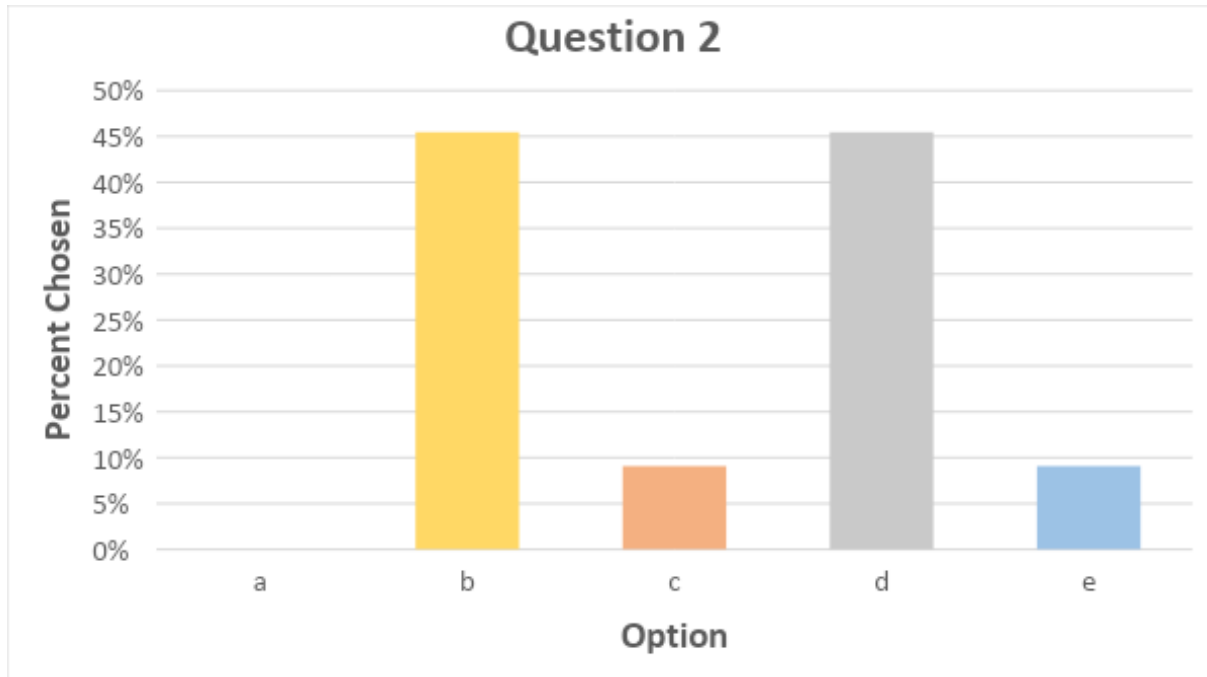
- To the extent possible, hold public meetings directed to the Alaska Native community.
- Initiate option number one and create a data collection system through partnerships with Tribal entities, mariners, and fishermen to collect data in real time on current operations and needs as they arise.
- Not all communities have the resources to provide input to these issues because of budgetary issues. So, there should be a fund established that will allow rural representation from coastal communities that are experiencing climate-related issues to send representatives to provide first-hand information as to the impact on the communities.
- Engage CMTS to serve as a leader/co-leader on studies and surveys, this will bring a broader focus than USCG alone.
- A survey will be more effective if some locally relevant information on the MTS is provided. For example, what is the “toolkit” for your area?

2. Aspects to consider for Arctic Maritime Studies. In sum, what new baseline studies are needed to understand Industry and Maritime Service needs in the medium and longer term for analysis associated with U.S. Arctic MTS?

- Option 1: New Port and Access Route Studies for the Arctic MTS?
- Option 2: Studies on emerging risks and hazards in light of a changing Arctic? Such a study can include environmental/geophysical changes as well as current baseline aspects of the commercial (shipping, fishing, tourism, mineral extraction) as well as government (Russian and other national entities presence missions, exercises, etc.)
- Option 3: A strategic foresight (Futures) analysis?
- Option 4: All of the above?



E. Other? Write in:

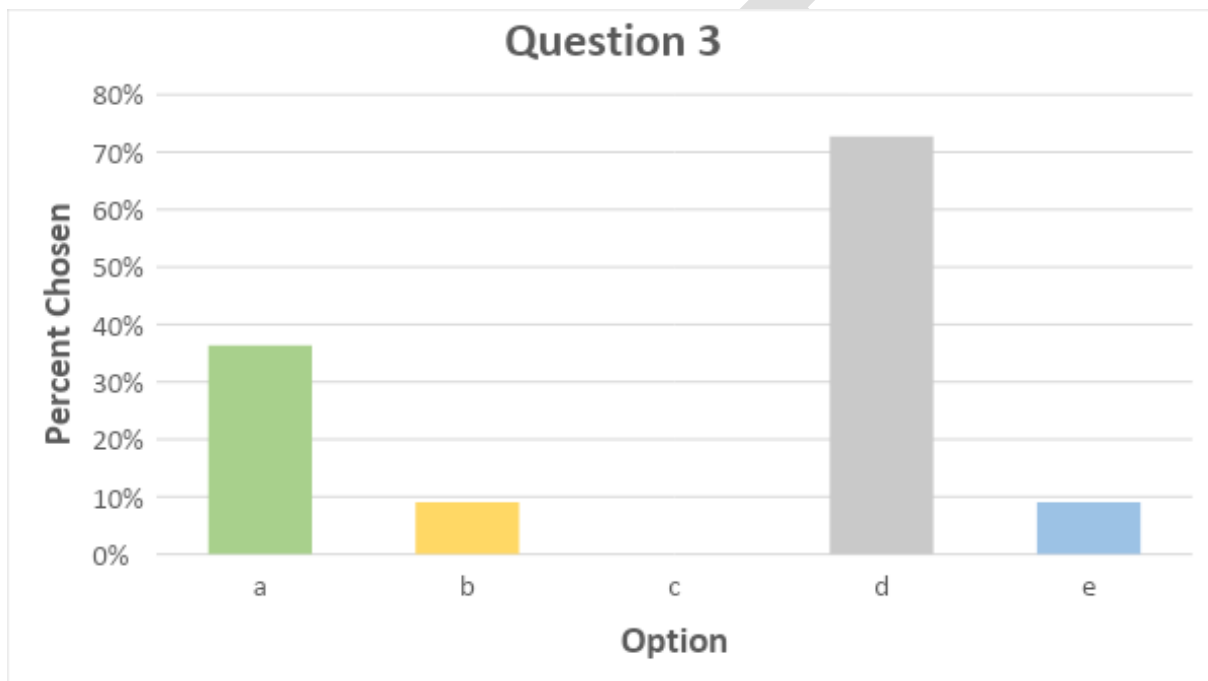


Responses for "Other"

- (Particularly 2&3)
 - Should also include trade growth analytics.
 - Continue with shipping activity reports and projections. If you're going to resource studies, maybe use it, instead, to advance infrastructure.
 - Our Nation must demonstrate that the Arctic is a critical part of the US, and if we don't start ensuring that our boundaries and interests are protected and respected, we will lose any advantage we might have had as a strong Arctic Nation participant.
 - Marine mammal migrations and local seasonal dependence have to be part of all research and planning. Please do not fold this into "fishing." A focus on fishing leads thinkers to commercial activities. Bringing the locally based marine mammal harvests into the discussion requires a focus that is unfamiliar to most who are not experienced with northern life. But without that, these efforts can lead to consequences that, while they may be unintended, can be disastrous.
 - Many baselines exist. Strategic futures would be useful leveraging, if possible, Director of Strategic Future efforts already completed.
 - Recommend integrating this question with question 1, as they are interconnected.
3. Improving understanding on the current trajectory of Arctic maritime activity, specifically commercial activity. In sum, what is industry planning and how should USCG and other responders better prepare? What are the impacts if the USCG does the same, more, or less with respect to planned safety measures in association for the Arctic MTS?



- A. Option 1: Conduct a series of regionally focused workshops to get localized understanding, that brings together commercial interests with USCG?
- B. Option 2: Establish a regularly scheduled virtual roundtable hosted by a USCG supporting team that invites guest speakers to discuss their challenges, concerns, opportunities and proposed solutions.
- C. Option 3: Ask commercial providers to host forums that invite USCG to listen and learn from across the mariner community. What is different here...is the burden of planning and hosting is pushed to the commercial community.
- D. Option 4: Integrated version of Option 1 and 2.
- E. Other? Write in:

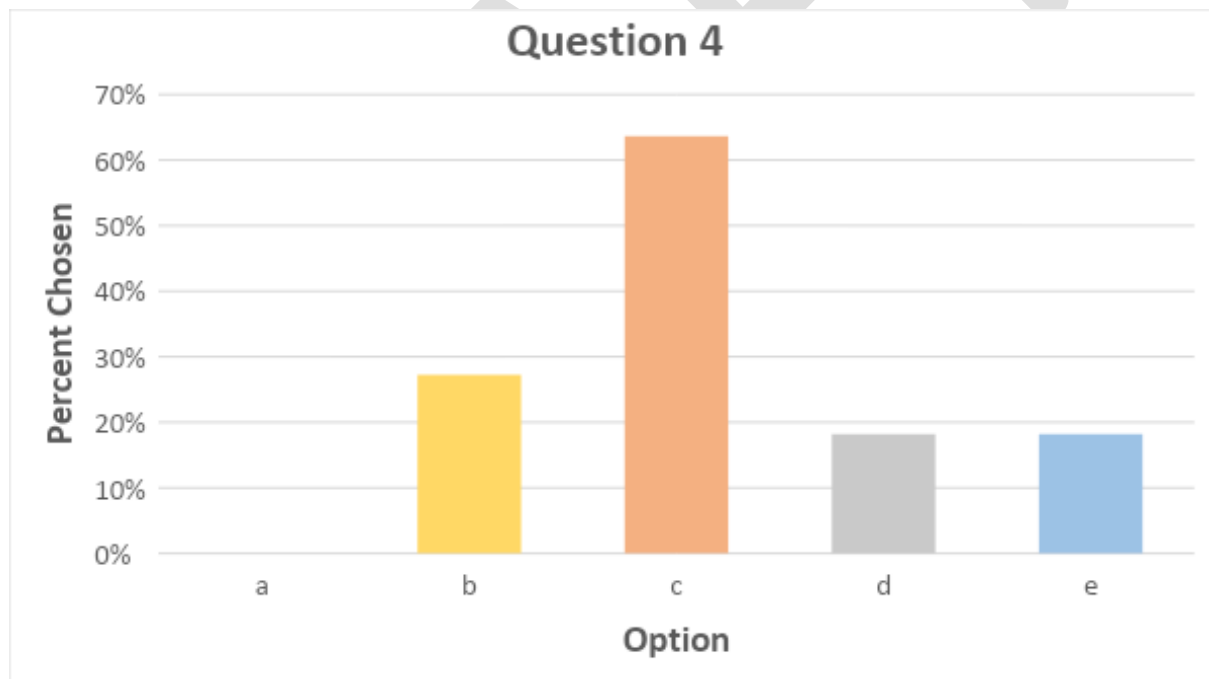


Responses for “Other”

- can be done virtually; CG should seek opportunities to hold side events at industry meetings too.
- The integrated version would reduce the chance of the direction of the meetings being biased (no malice, unintentionally) by the organizer (USCG vs industry)
- USCG must be an advocate to advance better communications between the Alaska native communities and themselves, ship operators, etc.
- The USCG needs to be funded to take on the role it is expected to fill. We can't send them to face China and Russia in the Arctic with “dime store” assets. They need to be provided with equipment that not just rivals but is better than those countries that are chomping at the bit to minimize our presence in the Arctic.
- Make CMTS a leader/co-leader of these efforts.
- Leverage existing industry forums and mechanisms.
- This is another way of saying: “We need a harbor safety committee.”



4. **Blue economy and the Arctic. What are the indicators and potentials to advance ocean-related industry into the Arctic and what are the implications as this relates to safety and environmental security in the maritime and coastal regions?**
- A. Option 1: Charter a study focused on learning about future plans and planning for Arctic region mariculture and aquaculture.
 - B. Option 2: Conduct a series of regionally focused workshops to get localized understanding, learning about future plans and planning for Arctic region mariculture and aquaculture?
 - C. Option 3: Partner with existing Arctic oriented Blue Economy centers for workshop(s) (such as the Alaska Ocean Cluster, the University of Alaska Anchorage Business Enterprise Institute and/or the University of Alaska Fairbanks Blue Economy Center to gain baseline understandings and future plans for Arctic region mariculture and aquaculture?
 - D. Option 4: Integrated versions of Option 1-3.
 - E. Other? Write in:

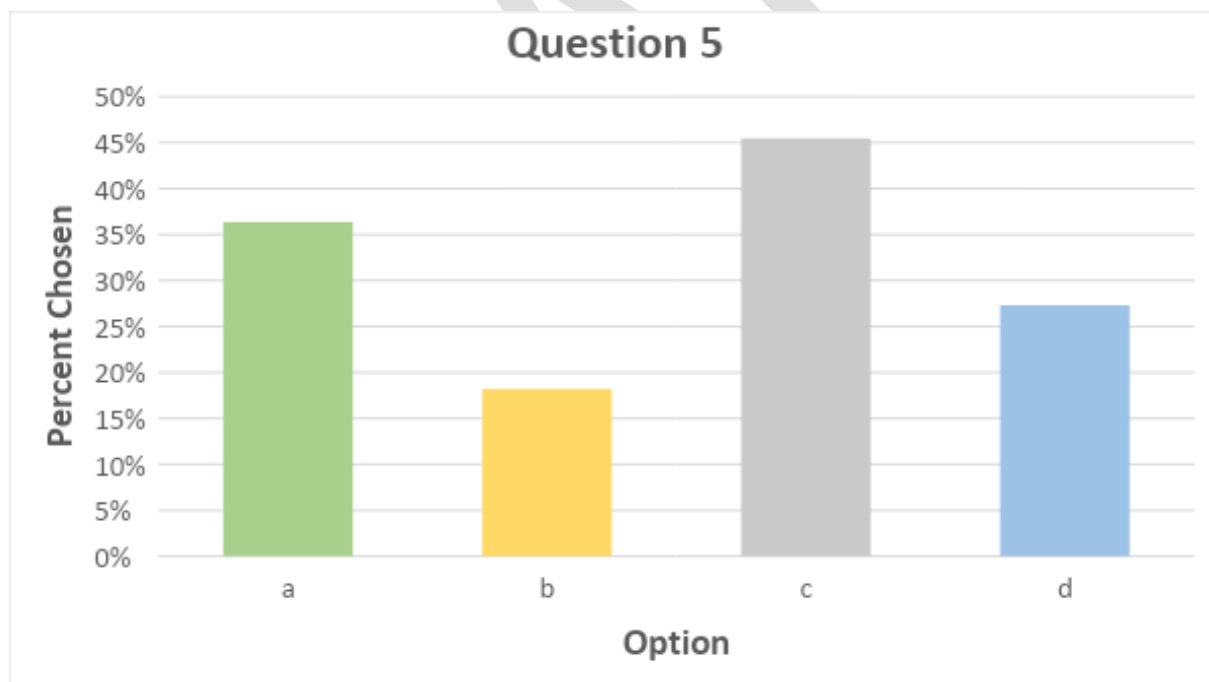


Responses for “Other”

- Partner with local chapters for the workshops
- These all seemed focused on mariculture and aquaculture, but there are other aspects to Blue Economy - fishing, tourism, also subsistence as part of the coastal communities' economy (i.e., not having to purchase grocery store food). Consider broadening the scope of the Blue Economy focus here.



- Don't like any of the answers as there are already assessments of current and future activities in the US Arctic. Other than implications to safety and security, what do you want to gain? More talking does not make changes.
 - Leverage existing forums and mechanisms - especially associated relationships.
 - There are existing mechanisms focused on response. Add a discussion of MTS to agendas for these existing forums.
5. **Suggested solutions to advance collaboration within the prevention and response community in association with the U.S. Arctic MTS. How can industry and coastal communities' better partner with USCG and other government agencies to advance improved safety and security for the Arctic MTS?**
- A. Option 1: Conduct a series of regionally focused workshops to get localized recommendations/proposed solutions.
 - B. Option 2: Establish a regularly scheduled virtual roundtable hosted by a USCG supporting team that invites guest speakers to discuss their challenges, concerns, opportunities and proposed solutions addressing safety & security risks.
 - C. Option 3: Integrated version of Option 1 and 2.
 - D. Other? Write in:



Responses for "Other"

- Include international partners.
- USCG Prevention and Response divisions need better coordination from within before tackling this issue.



- Regular comms is important but note there are already such communications with other organizations such as NOAA and NSF. Use existing organizations to communicate to limit burden on communities.
- Increase U.S. Coast Guard presence along the Alaskan Arctic coast.
- We need to have focused, smart and knowledgeable individuals (including local indigenous individuals) participate in this, and the work needs to be prioritized and funded. We can go to Walmart for a solution when Russia and China are bringing Saks 5th Avenue equipment and processes to the Arctic.
- Make local leaders/entities co-leaders throughout.
- Integrate and leverage existing industry forums and Federal interagency recommendations.

AMH 21 “Day 2” Polls (6 May 2021)

Move One: disabled oil tanker Bering Straits blown onto known obstacles.

Associated Poll: What policy planning, prevention and/or response activities should be planned and developed to reduce the risk of maritime operations for carriers of potentially hazardous materials in Arctic waters (such as petroleum/petroleum products)?

Poll options:

- Option 1: Increased marking/communications of known hazards (such as shoals or other underwater hazards) and enhanced use of decision support tools (such as geofencing) for vessel operators of commercial vessels carrying hazardous materials.
- Option 2: Increased waterway buffers from areas of known hazards. Do measures to reduce risks and of manmade catastrophic events sufficiently exist to cope with disaster in the remote regions of the Arctic. Are measures enacted after the Exxon Valdez disaster as relevant today? Should new studies that update disaster risks and mitigations be made a priority?
- Option 3: Chartering additional tug operations for quick response to vessels of distress in regions of known hazards?
- Option 4: Some combination of Options 1-4?
- Other? Write in:





Responses for “Other”

- Develop local response abilities through something like a youth program, or other part-time effort. The local response is going to be important even before federal and state entities can arrive.
- Identify high risk vessel transits (limited maneuverability or hazardous materials), combined with extreme weather events) and 'watch' them using AIS and looking for anomalous vessel behavior (dropped AIS signal, stopped vessel in hazardous weather) and use this intelligence to proactively respond before the incident becomes an accident.
- Numerous references to local partnerships are being made, but no discussion of how bring those about. Why isn't there a poll offering suggestions and opportunity for comments on this critical need?
- How -- Mandate requirement for Earth Predictive Capability System to provide skillful forecast for 10 days (or pick the number of days) to aid vessel in avoiding bad weather.
- None of the above. Oil spill response drills for critical areas in Western Alaska.
- More local involvement in development of geographic response strategies
- Implement vessel traffic monitors and response system.
- Utilizing enhanced prevention measures, such as the Marine Exchange. A multifaceted approach has to be used.
- A combination of 1 and 4, and maybe tugboat escorts for added safety.
- 1 & 2 and evaluate potential of developing localized traffic schemes that can be entered into the federal registry.

Move two: Congested waterways impact subsistence hunting.

Associated Poll: What policy planning, prevention and/or response activities should be planned and developed to increase mariner/vessel operations in congested areas that have a wide variety of dissimilar vessel size (large ocean-going ships operating in the vicinity of small subsistence craft).



Poll options:

- A. Option 1: Establish additional measures to reduce risk (such as mandatory use of Automated Information Systems/or perhaps a warning beacon for smaller vessels that alert vessels of proximity (especially important for hard to observe vessels).
- B. Option 2: Enhance communications forums between commercial vessel corporations and subsistence mariners to improve understanding as a complement to Notice to Mariners and other standard/standing communication forums.
- C. Option 3: Some combination of Options 1-2?
- D. Other? Write in:



Responses for “Other”

- We have run into some reluctance in our discussions with hunters regarding the use of AIS transponders on their vessels. This is due, at least in part, to past abuses by federal wildlife enforcement agencies. Gaining full acceptance of this technology may take time. A combination of technologies, including coastal ship-to-shore is the best approach.
- This NOT about linking with corporation but establishing more robust communications between operators...ship operators in the pilothouse and Indigenous hunters/users. Also, if we are to have an electronic 'coast pilot' in the pilothouse areas of Indigenous use most be illustrated. Indigenous use surveys, as call for the Arctic Council, are critical to understanding the many users on Arctic waterways.
- Harbor safety committee
- Consider dynamic management for the region (see sider's 2016 article, “a dynamic ocean management proposal for the BS region)

Move three: Chukchi Sea & Bering Straits Economic Boom and associated Security Concerns in U.S. and Russia

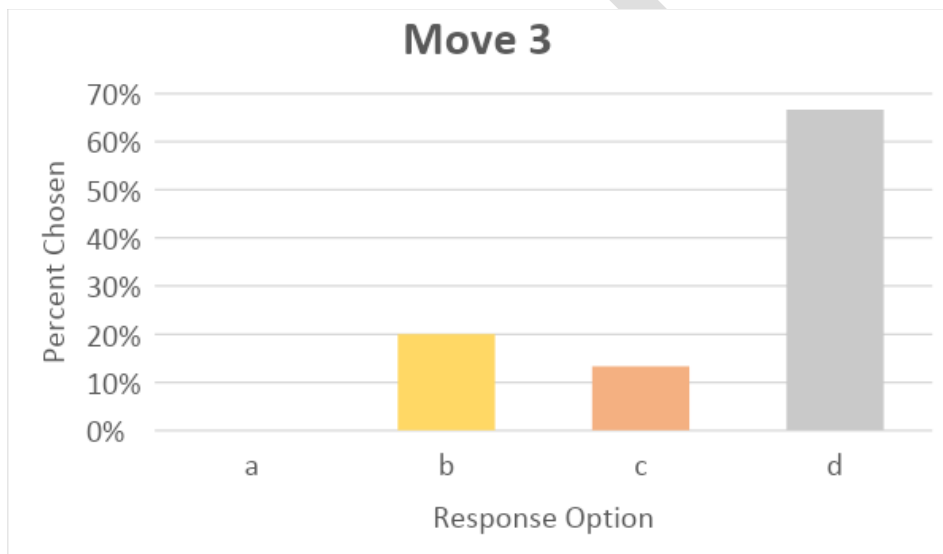
Associated Poll: What facets of the presentation on challenges, needs, and opportunities do participants and observers see as most important (i.e., what should be the top, or at least, among



the top priorities for USCG led Arctic Maritime Waterways Management when significant changes happen to Arctic maritime activities?

Poll options:

- A. Option 1: Enhance efforts in characterizing the changing Arctic physical environment: research and analysis that advance understanding of marine, terrestrial and atmospheric environments, to include assessing the changing dynamics at fine/finer scale?
- B. Option 2: Seek assistance in authorizations and appropriations to address the factors that elevate risk during Arctic operational activities such as communications, connectivity, & domain awareness/management shortfalls, and ability to detect hazards to operations?
- C. Option 3: Advancing mechanisms that respond to the opening Arctic. Should U.S., Allies and competitors strengthen Arctic multilateralism through the Arctic Council and International Maritime Organization's Arctic efforts?
 - a. Option 4: Some combination of Options 1-3?
- D. Other? Write in:



Responses for "Other"

- All three, A-C, need to better understand emerging threats so we can adequately prepare and best position the U.S. to incorporate advances and identify strategic economic advantages.
- Please don't move forward with planning that does not include local communities.
- Build more Medium Icebreakers and Patrol Vessels and base them in the Bering Strait region
- Combinations of 2 and 3. Expand option 3 to include strengthening bilateral relations - formal and informal - with Russia, given the strong working relationship the two Coast Guards. Especially important to focus on family and other ties between Indigenous people on both sides of the Strait. Also, it occurs to me that I heard nothing about the current administration's reinstatement of the Northern Bering Sea Resilience Area by Executive Order. Not sure of implications for MTS.



Exercise Analysis and Outcomes

While participants were quick to identify gaps or inadequacies within the U.S. Arctic MTS, participants also provided constructive insights on how these issues could be addressed by the community of Arctic operators and government. Ultimately these conversations highlighted the need for cooperation and collaboration between industry, government and local communities as challenges in the Arctic are too great for a single entity to meet alone. While USCG is tasked with governance and maintenance of the MTS, Indigenous communities and Industry have experience and assets that can be relied upon to supplement USCG extensive operational experience and capabilities in the Arctic. As illustrated by the exercise movements, maritime incident response in the Arctic will likely come from a multitude of regional industry and community actors before the USCG is capable of deploying assets on scene. Given there are limited vessels operating within the region at any given time, any vessel assisting with incident response will be one less available to support regular commerce and maritime operations in the U.S. Arctic MTS. Therefore, participants noted that a systematic approach is appropriate when in the development of incident response plans and preventative measures.

As investment is limited, it is important for USCG and local government to establish the right balance between preventative measures and response capabilities. Participants noted that with the right preventative measures and effective enforcement, response assets could remain unused throughout their entire operational lifetime. However not investing in response assets will leave the MTS vulnerable in the event of incident and reduce the ability for USCG to mount a quick and effective response. Therefore, participants appeared to arrive at the conclusion that response capability must be balanced with enforcement of regulations that ensure the effective incident prevention. As one participant noted, the Circumpolar community at the international and national levels has been highly effective in establishing rules and regulations to govern maritime activity in the Arctic. However, governments have been less effective in provisioning law enforcement entities, like the USCG, with the capabilities to enforce these rules. Strategies and guidelines for safe and sustainable activity must be backed with methods and capabilities for their effective implementation.

The following are selection of specific themes and outcomes that were most frequently cited by Exercise participants:

Designation of Ports of Refuge: As participants debated a suitable location to tow the stranded vessel, the need for established Ports of Refuge was cited by participants. These locations should be determined in full consultation with local communities in order to incorporate knowledge of sensitive wildlife habitat and avoid potential conflicts with small boat traffic. At such ports of refuge, consider establishing expeditionary capabilities to enable logistically supporting vessels in distress.

Community Involvement in Incident Response and Prevention: While participants noted that often times “Good Samaritans” are the first responders on the scene in most incidents in Alaska, rural community members frequently expressed the desire to be more formally involved and equipped to engage in incident response. This desire was most frequently associated with the response to oil spills or other environmental disasters. Community members suggested that the prepositioning of



response assets would be highly valuable. Establishing training programs is the needed complement to establishing prepositioned assets. Where participation in appropriate and helpful, community members expressed the desire to participate in incident response training programs. Such measures they argued would promote community agency in response to environmental risks emerging from increased maritime traffic in the Arctic EEZ. The deployment of prepositioned response assets could be coordinated with newly established Ports of Refuge and high-risk areas.

One way to better support rural regional response is to consider establishing U.S. Coast Guard Auxiliary units across Arctic Maritime Alaska. USCG Auxiliary associations are esteemed entities in other regions of South Central and Southeast Alaska and in other regions of the U.S. Establishing such auxiliary units across Arctic Alaska can help facilitate more consensus and community partnerships, as these units are filled with people from the community. Hub coastal communities such as Nome, Kotzebue, Wainwright and Utqiagvik are potentially useful locations to consider,

Participants recommended an outcome of the Arctic Maritime Horizons exercise should include a call for better communications overall between large entities like the U.S. Coast Guard and smaller communities and local organizations.

Information Infrastructure in Prevention: When first confronted with the Movement #1 of the Exercise, participants first asked the question: how did the vessel master make the decision to assume the risk of their chosen route and cause the vessel to be stranded? This highlighted the need for vessel masters to have accurate information available to them on any potential or known hazards and communication systems that enable timely and direct communication between vessels and USCG. This includes traditional navigational data like hydrographic data and submerged hazards but also includes accurate information on weather and currents, weather forecasting, and ice coverage. Overall, vessel masters need to be equipped with the information they need to make informed decisions and avoid incidents.

Information Infrastructure in Response: Participants noted the need for a more formalized management of information to aid incident response. While systems exist for USCG Watch Standers, participants suggested this should be supplemented with new sources of information and tools to enable incident command to make more informed decisions. Participants noted the inclusion of crowd sourced information would be useful and could further advance the information infrastructure in the Arctic EEZ. Accurate monitoring of vessel traffic allows USCG Watch Standers to identify anomalous vessel behavior and develop a response earlier in the event of an incident. A database on available commercial and government response assets in the given region would save the USCG time in deploying assets on scene. As remote communities often have limited communications capabilities, maintaining an accurate database on available points of contact for each community is important.

Data Centralization and Information Sharing: Building upon the previous themes, participants expressed the desire for information necessary for safe maritime navigation to be housed a single, centralized data or GIS system. This system could be hosted by a non-profit and contain timely information updates provided by open-source operators in the region as well as inputs from the U.S.



Coast Guard. The database could help to improve accuracy in the information space and ensure that all vessels' masters are making informed decisions. Overall, participants suggested a consortium approach should be adopted, that leans heavily on the experience of industry and the expertise of the USCG. Again, establishing more USCG auxiliaries across Arctic maritime Alaska may well help support information sharing initiatives.

Establishment or Re-establishment of Maritime User Forums: As illustrated in Exercise Movement #2, user conflicts in high traffic areas can be avoided through consultation between industry and local communities. Participants noted that such bodies could resolve disputes and prevent incidents without the involvement of the USCG. The need to establish closer rapport between community leaders and USCG was well noted throughout AMH21. Maritime user forums provide USCG an institutional approach to facilitate such collaboration with coastal Arctic communities.

Need for Established, Inclusive Forums to Evaluate and Determine Improvements for the Maritime Transportation System: Participants frequently cited the utility of establishing a dedicated committee to advise the USCG on Arctic issues and the implementation of the USCG Arctic Strategy. Participants suggested this forum or forums, possibly a Federal Advisory Committee Act (FACA) Committee, should be inclusive to all user groups effected by the Arctic Maritime Transportation System. Participants noted the importance of including industry in conversations around new investments in the Arctic MTS as they have extensive operational experience in the region and therefore an understanding what investments would best enhance the overall reliability of the MTS. Overall, participants noted that inclusive bodies encourage a more systematic and federated approach when engaging in Arctic issues.

Conclusion

Arctic Maritime Horizons (AMH) 2021 drew together a diverse community of users and beneficiaries of the Arctic Maritime Transportation System (MTS) in order crystalize common purpose and outcomes for all maritime users. Through this AMH achieved a robust conversation layered with the distinct perspectives of the multiplicity of Arctic operators, residents, and government agencies that support and benefit from the Arctic MTS. While many gaps and issue remain in the U.S. Arctic Maritime Transportation System, the intent of this report is to identify possible avenues to continue the dialogue on how to improve the Arctic Maritime Transportation System for the benefit of all American citizens.

As one participant noted, this is a new Arctic for some, but the Arctic has been well understood by generations of Indigenous people who have called it home. As Arctic region becomes more dynamic, there is a need to reassess the risks to the marine environment and traditional subsistence activities that have support human activity in the region since time immemorial. This has catalyzed the need to deconflict the usage of the region's waterways and establish durable rules that promote the sustainable operations in the Arctic domain. Commerce and new operators in the region do not necessarily conflict with the traditional lifestyles of Arctic peoples. Instead, new commercial activity in the region can also present economic opportunities that can be leveraged to supplement and ultimately sustain traditional lifestyles.



While the future of maritime activity in the Arctic depends on a collection of political and economic factors, it is prudent to prepare for increased usage of the U.S. Arctic Maritime System in the future. As participants noted, the early establishment of the “rules of the road” promote a sustainable usage of maritime waterways and reduce the potential for user conflicts between traditional and new operators in the region. In conjunction with new USCG assets capable of enforcing the law and projecting a U.S. presence in the Arctic, the United States can facilitate the emergence of a rules-based international order within the Circumpolar North.

While this exercise was focused on needed policies and authorities, subsequent efforts are likely useful to establish science and technology and operational capabilities useful to address implementation of the strategic outlook of the MTS for the Arctic region.

The Arctic Domain Awareness Center sincerely appreciates the participation of all who attended and contributed to Arctic Maritime Time Horizons 2021. ADAC especially appreciates the participation to those who contributed to the dialogue online despite major time zone differences and those who traveled vast distances, from the rural communities in the Alaskan Arctic or Washington D.C., to attend in person. As a follow-up from Arctic Maritime Horizons 2021, ADAC plans to conduct an on-line/virtual exercise in the Spring 2022 to further analyze the U.S. Arctic MTS in support of HQ USCG SAPA.

DRAFT



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